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ABORIGINAL TOBACCOS

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ACCORDING to De Candolle in his *Origin of Cultivated Plants*,[1] somewhat over forty of the plants now generally cultivated came from the Americas, some of them having been introduced into Europe very soon after the discovery of the "new continent" by Columbus. This has been regarded as being true particularly of maize, potatoes, and tobacco. There have not been wanting claims as to other origins for many of these supposedly American cultivated plants and the tobaccos have frequently been under suspicion. The most careful investigations, however, have tended only to confirm the idea of the non-existence of any species of tobacco used for smoking, snuffing, or chewing outside the confines of the American continents. The latest writer to claim a non-American origin for tobacco, as well as certain other cultivated plants of supposedly American origin, is Leo Wiener.[2] Professor Wiener devotes ninety pages of his book to a consideration of tobacco, chiefly from the point of view of its various names. His conclusions appear to be that the cultivated tobacco originated in Africa and was introduced thence into the Americas by Negro slaves imported by the Spaniards. The linguistic evidence brought forward by Professor Wiener seems to one unacquainted with the value of such evidence as to origins and migrations of peoples, plants, etc., to be far-fetched and

[1] *Origin of Cultivated Plants*, in Internat. Sci. Series, vol. 48, New York, 1885.

[2] *Africa and the Discovery of America*, vol. 1, Philadelphia, 1920.

often trivial. The discussion of this portion of Wiener's claim has been taken up by one well qualified to estimate its worth.[1]

The botanical evidence, however, has not been dealt with to any extent by Wiener, and, in fact, he does not seem at all aware that there is any complexity to this side of the question he attempts to settle so readily and so smugly. While we are by no means certain as to the exact sources of the two species of Nicotiana most commonly used for smoking, viz., *Nicotiana Tabacum* and *N. rustica*, all evidence in our possession is strongly against the assumption of a non-American origin. It seems to the botanist that *Nicotiana Tabacum*, for example, is much more likely to have been carried from Brazil or the West Indies, where its culture was early widespread, if not aboriginal, to Africa, by the very agents who procured the Negro slaves for American use. In doing so, it seems very likely that the Brazilian or other American names may thus have been transferred early to Africa along with the plants to which they belonged, and have become firmly and extensively incorporated into African native languages. However this may or may not be, the strongest botanical evidence for the American origin of the tobaccos, as used by man, is the existence of a large number of species of Nicotiana, undoubtedly native to the Cordilleran ranges, extending from the State of Washington in the United States of North America to the central portions of Chile in South America. The only species of Nicotiana which are undoubtedly extra-American are two, viz., *N. suaveolens* and *N. fragrans*, natives of the Australian region, closely related to certain Chilean species, and never used for smoking or similar purposes before the advent of the white man to the countries where they are known to occur.

Of the somewhere in the neighborhood of seventy species of Nicotiana generally recognized, there are to be found in North America, either growing wild or in aboriginal cultivation, some fourteen species. Of these fourteen North American species, I have evidence of the use of nine species or varieties by different tribes of American Indians at the present time. At present they are used

[1] Cf. R. B. Dixon, *American Anthropologist*, vol. 22, no. 2, April–June, 1920, especially pp. 179–181, and "Words for Tobacco in American Indian Languages," ibid., vol. 23, no. 1, pp. 19–49.

only, or at least chiefly, for ceremonial purposes, their use for smoking generally having been superseded by the trade-tobacco early introduced by the white traders. It is to the close association of tobacco with the religious and social observances of the various tribes of North American Indians that we owe the continuation of the use, and particularly of the cultivation, of aboriginal tobaccos and the opportunity of obtaining first-hand information as to the species employed as well as to the ceremonies connected with their use. For somewhat over fifteen years I have been collecting information on the subject of the species employed and have importuned every anthropologist who was luckless enough to come into my circle of acquaintances to assist in obtaining seed of any possible species of Nicotiana still found to be in aboriginal use. The result has exceeded my original expectations by far, and a number of species which I had imagined to be beyond further proof than mere mention of their employment by one tribe or another have been found still in use and either cultivated or collected wild. Of these, seed has been procured in practically all cases, and I have been able to grow it in the botanical garden at the University of California and assure myself as to the identity.

The use of narcotics is found to be general wherever they are readily available and it is remarkable how quickly and how widely the use of a narcotic will spread when once introduced. This has been particularly the case with tobacco after the discovery of America, as Tiedemann[1] has so convincingly shown. The extent of the use of the narcotics, tobacco and coca, in the Americas previous to 1492 is well delineated by Wissler.[2] Wissler's chart distinguishes between the areas where tobacco was chewed and those where it was smoked, and it even distinguishes between the areas where the tubular or elbow pipes were smoked and those where cigars or cigarettes were employed. This chart indicates that tobacco was used over the whole of both Americas with the exception of the extreme northern portions of North America and the extreme southern portions of South America. The tribes of North American Indians who were fortunate enough to dwell in a region provided with a native species

[1] *Geschichte des Tabaks*, Frankfurt a M., 1854.

[2] *The American Indian*, fig. 8, New York, 1917.

of Nicotiana seem to have learned to use it and to have paid little or no attention to its cultivation. Some such tribes, however, did burn over small areas to make the wild tobacco grow more abundantly or more luxuriantly. The tribes of North American Indians, living in areas destitute of a native species of Nicotiana, either cultivated some species or obtained their supply from other tribes who had a supply, cultivated or wild. The relation of the different species of North American tobacco to the various trade routes of the Indians has not as yet been investigated, but some suggestions as to these relations may become apparent as I proceed with the present discussion. When tobacco was cultivated, its planting, at least, was usually attended with more or less elaborate ceremonies.

The species of Nicotiana which is best and most widely known is *Nicotiana Tabacum* L. It is pink-flowered and is the only species belonging to its section of the genus. The variation within the species, however, is so very considerable that at least five subspecies may be segregated, and, superficially at least, these seem distinct enough to be considered as species. The subspecies may each be divided and subdivided again and again into a very large number of varieties and subvarieties, so that, in general, *Nicotiana Tabacum* has all the ear-marks of an old and widely cultivated plant. The cultivation of this species, in its various forms, is almost exclusive at present for the tobacco trade of all nations. It was the aboriginal tobacco of the West Indies, of the greater part of Mexico, of the states of Central America, of the United States of Colombia, of Venezuela, of the Guianas, and of Brazil. The Brazilian name of this species is said to have been "petun," and this name was very generally used for tobacco in the accounts of it in the sixteenth century. Wiener[1] thinks that this word is a corruption of the Portuguese "betume," meaning a pasty substance. It seems strange that this derivation of the name was not known, if true, to any of the writers on tobacco of the sixteenth and seventeenth centuries. The Mexican name for *Nicotiana Tabacum*, "piecelt," was also early widespread.

The origin, as well as the original sources, of *Nicotiana Tabacum*

[1] Loc. cit., p. 135.

is uncertain, since it is not known in the wild condition in any of the countries where it is under cultivation. It seems probable that it may have originated in the interior of Brazil and possibly somewhere on the lower eastern slopes of the Andes. It is very evidently a tropical species and in the tropics often becomes spontaneous, escaping from cultivation and persisting in favorable localities. Some varieties are semi-hardy in regions of little frost, but frostless and humid areas are evidently similar to its ancestral home. Edward Palmer found it in Indian cultivation in southern Arizona under the name of "Yaqui Tobacco."[1] This "Yaqui Tobacco" is referred by Gray to the var. *undulata* Sendtner. North of Mexico, however, *Nicotiana Tabacum* was practically unknown in aboriginal use.

The yellow-flowered tobacco, *Nicotiana rustica* L., was the second species of tobacco to attract the notice of Europeans and for some time almost monopolized attention. This was the first species of tobacco to be cultivated in the Colony of Virginia. It was fairly soon supplanted there, however, by a variety of *Nicotiana Tabacum* called "Orinoco," introduced, it is said, by Sir Walter Raleigh, or through his recommendation. *Nicotiana rustica* is still the home-grown species of the peasants of Central Europe and still furnishes the Syrian "Tombac" for the water-pipes of western Asia. It is a much more hardy species than is *Nicotiana Tabacum* and has been credited with being a native of the Old World. There seems to be no exact evidence, however, that this is so, and, although it has not been found in undoubted wild condition, the general supposition is that it probably originated in Mexico. It seems fairly certain that it is American and probably Cordilleran like all its near relatives of the *Rustica* section of the genus Nicotiana. Like *Nicotiana Tabacum*, *N. rustica* was described and figured in pre-Linnean herbals, especially in certain of those of the sixteenth century, where it was designated as the lesser or female tobacco, while *N. Tabacum* was called the greater or male tobacco.

Nicotiana rustica seems to have been cultivated and smoked by all of the Indian tribes of North America east of the Mississippi River and by most of those immediately to the west of it. The west-

[1] Gray, *Synoptical Flora of North America*, vol. 2, pt. 1, New York, 1878, p. 241.

ern boundary of its aboriginal cultivation or use is, naturally, difficult to determine with exactness, but is probably along the line of the eastern boundary of the "Plains Area" as outlined by Wissler.[1] The use of this species, then, may be supposed to have extended over the "Eastern Woodland Area" and the "Southeastern Area" of the social groups of North American Indians as classified according to their cultures. The evidence on which this supposition is based is scanty, but reasonably convincing. In the first place, we know that smoking was general over these culture areas and was held of importance as a ceremony. In the second place, Strachey, about 1610,[2] speaks definitely of the flower of the tobacco of the Virginian Indians as having a yellow color and otherwise as conforming to the description of *Nicotiana rustica*. It is interesting to note here that the Indian name for the Virginia tobacco was "Uppowoc," or, as Strachey wrote it, "Apooke." In the third place, the Onondaga Indians, center nation, fire-keepers, tobacco nation, and holders of the responsibility of general referendum of the Five Nations or Iroquois, still cultivate *Nicotiana rustica* as the "Sacred Tobacco" of their confederacy. I have been able to grow plants from Onondaga seed kindly furnished by Chief Cornplanter through Arthur C. Parker. W. M. Beauchamp[3] mentions *Nicotiana rustica* as the species called "O-yen-kwa-hon-we," and I have seen specimens of the Onondaga plant provided by him in the Herbarium at the New York Botanical Garden. The Iroquois tradition of the origin of the tobacco plant is related by Arthur C. Parker.[4] As stated by Esquire Johnson, an old Seneca chief, to Mrs. Asher Wright, the missionary, the squash grew from the earth directly over Earth-Mother's navel, the beans from that above her feet, and the tobacco-plant from that above her head. "Thus," he added, "it soothes the mind and sobers thought." In the fourth place, tobacco seed from the Winnebago Indians of Minnesota, furnished by Dr. Melvin R. Gilmore, yielded *Nicotiana*

[1] Loc. cit., p. 207.

[2] Strachey, William, The Historie of Travaile into Virginia Brittania, *Hakluyt Society*, London, pp. 121, 122, 1849.

[3] Onondaga Indian Names for Plants, *Bull. Torrey Botan. Club*, vol. 16, pp. 54, 55.

[4] Indian Uses of Maize and other Food Plants, *Bull. No. 114, New York State Museum*, 1910, p. 37.

rustica, on being grown. In the fifth place, and finally in the evidence, there occur spontaneous plants of *Nicotiana rustica* in various parts of these general areas, which seem to be remnants of earlier Indian cultivation. Possibly some of these which have been collected and recorded may have been ballast weeds or escapes from cultivation more recent than that of the Indians, but some of them seem fairly certainly to be relics of aboriginal culture. Such possible remnants of Indian cultivation are credited to Connecticut, New York, Wisconsin, Illinois, Minnesota, and Texas, in other words indicating an aboriginal cultivation of *Nicotiana rustica* extending well over the general areas to which I have assigned it. These facts, together with the general plausibility of the supposition, have led me to map out the areas of aboriginal culture for this species as I have indicated above.

The third section of the genus Nicotiana is called the Petunioides-section whose corollas are typically salverform and whose color is white, although often tinged with green, red, or purple. About twelve species or well-marked varieties of this section occur within the confines of North America or the adjacent islands, but only seven of them are at all definitely known to me as having been used by the Indians. There is a most interesting group of five species and varieties centering about *Nicotiana Bigelovii* (Torr.) Watson and one very widespread species *Nicotiana attenuata* Torr. The five species of this section of the genus which are not as yet known to have been in use by the Indians are the following: *Nicotiana acuminata* var. *parviflora* Comes. ?, in central California; *N. Clevelandii* Gray, in southwestern California, possibly used by the Santa Barbara and other tribes of coast Indians; *N. repanda* Willd., in southwestern Texas and adjacent portions of Mexico; *N. plumbaginifolia* Viv., in northeastern Mexico and crossing the Rio Grande into Texas; and *N. Stocktoni* Brandegee, on Guadalupe Island off the coast of Lower California.

The *Nicotiana Bigelovii*-group consists of three very well marked varieties of *N. Bigelovii* (Torr.) Watson, *N. quadrivalvis* Pursh, and *N. multivalvis* Landl. There is such a close resemblance in so many details of habit and structure that it certainly seems probable that the five distinct genetic entities of the *Bigelovii*-group must have origi-

nated from one and the same stock, possibly through mutation, but probably also complicated by more or less hybridization. Their distribution in nature and under aboriginal cultivation reënforces this assumption with strong arguments. The three varieties of *Nicotiana Bigelovii* are found native in three separate portions of California, *N. multivalvis* was cultivated by the Indians in Oregon, Idaho, and Montana, while *N. quadrivalvis* was similarly cultivated in North Dakota. The distribution of this group runs from southern California north through the entire state of California and well into Oregon, possibly also entering the southeastern corner of the state of Washington. From Oregon, it bends eastward up along the tributaries of the Columbia River, across Idaho and the continental divide, and descends the Missouri River into Montana and North Dakota. With these ideas as to the group and its distribution, the way is made ready for a consideration of its various members.

Torrey was the first to call attention to *Nicotiana Bigelovii* which he named *N. plumbaginifolia*? var. *Bigelovii*. This was as early as 1857. In 1871, Watson raised the variety to a species and published a more complete description, as well as a good figure of it. The type specimens came from the Sierran foothills in central California and are low spreading plants, with short internodes, ascending branches, large and conspicuous white flowers, and prominent glandular pubescence turning brownish, or rusty, with age. S. A. Barrett found it in the general type region in use among the Miwok Indians and was kind enough to obtain seed for me. I have grown it in the pure line for many years and find that it retains its distinctive varietal characteristics from generation to generation. This plant, the taxonomic type of *Nicotiana Bigelovii*, occupies an area in the very center of California which is definitely limited and also separated from the areas occupied by the other varieties of the species.

The plant which has usually passed under the name of *Nicotiana Bigelovii*, however, is the tall erect variety found in abundance in the dry washes of stream-beds to the north of San Francisco Bay, from Sonoma, Mendocino, and Humboldt Counties eastward to Shasta and possibly also other counties of California. This variety, which as yet has no distinctive name, may reach a height of as much as six

feet, has long erect branches with elongated internodes, and with large flowers which are more separated than in the plants of the taxonomic type. In common with the type of the species, this tall and erect variety has a decided tendency toward a three-celled ovary and such are to be found in most well-developed plants although in a small percentage of the total number of capsules matured. Chestnut[1] states that this variety is used for smoking and also for chewing by all the Indian tribes of Mendocino County, California. Thanks to P. E. Goddard[2] and S. A. Barrett, I have perfectly reliable evidence that it is still used by the Hupa and the Pomo. The Hupa, at least, knew it both wild and cultivated,[3] but the Pomo seem to have used only the wild plant. As to how far the use of this variety extended into Oregon I am uncertain, but I have the opinion that, towards its northern limits and beyond them, attempts were made to cultivate it, as certainly was the case among the Hupa. Northern California represents the limit of the spontaneous distribution of any coastal species of Nicotiana and in Oregon we find that the cultivated tobacco of certain Indian tribes was a nearly related species, or possibly derived variety, of *N. Bigelovii*, viz., *N. multivalvis* Lindl.

There can be little doubt that it was some form of the *Bigelovii*-group of the genus Nicotiana which was used by the Indians whom Drake encountered in 1579, when he landed on the coast of California, somewhere in the vicinity of Drake's Bay. Wiener[4] remarks on Drake's account as follows: "That *tabaco*, first mentioned in Hispaniola, should have found its way so far to the northwest, in addition to the rest of the continent, is a *prima facie* proof that the distribution of *tobacco* follows from its first appearance under Arabic influence, from Guinea to all countries where Spanish, Portuguese, and French sailors navigated via Guinea or after having taken part in Guinea expeditions." The extreme improbability of *Nicotiana Bigelovii* having originated in Guinea and having been brought thence

[1] Plants used by the Indians of Mendocino County, California, *Contr. U. S. National Herb.*, vol. 7, no. 3, pp. 386, 387, 1902.

[2] Life and Culture of the Hupa, in *Univ. Calif. Pubs., Amer. Arch. and Eth.*, vol. 1, no. 1, p. 37, 1903.

[3] Goddard, loc. cit.

[4] Loc. cit., p. 141.

to the State of California, the only place where it has ever been known, and through any human agency, takes away the effectiveness of this "*prima facie* proof" and yields another strong probability that the tobacco of Hispaniola may have been carried from Hispaniola to Guinea rather than that any species of tobacco may have been brought from Guinea to Hispaniola or any other portion of the American Continent.

The third variety of *Nicotiana Bigelovii*, the var. *Wallacei* Gray, is found in a limited area in southern California and distinctly separated, in its distribution, from either, or both, of the other varieties of the species. Var. *Wallacei* is a plant of medium height, erect, and much more slender than either of the two varieties of central and of northern California. It has a smaller flower with more slender tube and I have never seen a three-celled ovary among several thousand examined, all the ovaries, and ripe capsules, having been found to be two-celled. While it is very probable that this variety may have been used by the Indian tribes of the region where it occurs, I have been unable to obtain any direct evidence that such was the case. Its relations with *Nicotiana Clevelandii* Gray, both botanically and as to aboriginal use, are still very uncertain.

When Lewis and Clark visited the Mandan villages in North Dakota in 1804,[1] they found the inhabitants smoking a kind of tobacco never seen previously by white men. They obtained specimens and seed for their collections as well as data for their report. The specimens brought back by them served as the type of the *Nicotiana quadrivalvis* Pursh[2] and are now preserved among the collections of the Academy of Natural Sciences of Philadelphia. The seed, or some of it at least, was distributed so that it was the source of the plants grown in various botanical gardens in Europe and its descendants are still to be found in some such institutions. A few years ago, through the courtesy of the Anthropological Section of the American Museum of Natural History of New York City, I was enabled to obtain from George F. Will of Bismarck, North Dakota, and from Melvin Ran-

[1] Cf. Thwaites, *Original Journals of the Lewis and Clark Expedition, 1804–1806*, vol. 1, pp. 183, 186, 187, 1904; vol. 6, pp. 142, 149–151, 158, 1905, New York.

[2] *Flora Americae Septentrionalis*, vol. 1, p. 141, 1814.

dolph Gilmore of Lincoln, Nebraska, seed of this species which was still being cultivated by a Hidatsa Indian. I have grown the descendants of the plants from this seed and in the pure line for several generations and find that it still comes absolutely true to type as described by Lewis and Clark and as represented by the Lewis and Clark specimens. The plants very closely resemble those of the type of *Nicotiana Bigelovii*, but the flowers are neither quite so large nor so graceful. The chief difference from any of the varieties of *N. Bigelovii*, however, is to be found in the ovary. This is constantly four-celled in *N. quadrivalvis*, while in *N. Bigelovii*, it is preponderatingly two-celled, although three celled examples are frequent in the type and in the northern variety. *Nicotiana quadrivalvis* is not only the tobacco of the Mandan, but of the Arikara and the Hidatsa Indians as well. How they obtained it is not known, but it is not known outside of cultivation. This latter fact, taken in connection with the close resemblance to *Nicotiana Bigelovii*, the only essential difference being the increase in the number of carpels as shown by the four-celled ovary, makes it appear reasonably certain that *N. quadrivalvis* is only a derivative from some form of *N. Bigelovii*. It may possibly have arisen by a single mutation or it may be a hybrid derivative from a cross between *N. Bigelovii* and *N. multivalvis*. I have obtained forms very close to *N. quadrivalvis* as descendants of such a cross and such forms have appeared in the botanical garden of the University of California as the result of a probably spontaneous cross between the two species mentioned. It is of decided interest to find a *Bigelovii*-derivative so far from the *Bigelovii* home and this interest is increased by the fact that *N. quadrivalvis* is connected in distribution with the Californian area by the area in which *N. multivalvis*, itself seemingly a *Bigelovii*-derivative, is found under aboriginal cultivation.

The Hidatsa tobacco, which is fairly certainly *Nicotiana quadrivalvis*, has been the subject of study by Gilbert L. Wilson.[1] He says that the Hidatsa cultivate tobacco, but does not mention the species. It is not used by the young men because it prevents running by

[1] Agriculture of the Hidatsa Indians, an Indian Interpretation, *Univ. of Minnesota Studies in the Social Sciences*, no. 9, Minneapolis, 1917, pp. 121–127.

causing shortness of breath. It is not planted near corn because tobacco has a strong smell that affects corn. In harvesting, the blossoms are picked first, the white parts (corollas) being thrown away, and the stems and leaves are picked last. Both blossoms and stems are treated with buffalo-fat before being stored. The Hidatsa name for their tobacco, according to Lowie,[1] is ōpe.

Melvin Randolph Gilmore,[2] in treating of the uses of plants by the Missouri River Indians, writes as if they all used *Nicotiana quadrivalvis*,[3] although he mentions specifically that his definite knowledge was of the Hidatsa tobacco only. He states that *N. quadrivalvis* was cultivated by all the tribes of Nebraska,[4] but was lost as soon as they came into contact with Europeans and so completely that not even the oldest Omaha had ever seen it in cultivation. It seems fully as probable that the Nebraska tribes, being nomads, may not have cultivated tobacco, but probably obtained it by trade. In this case it seems just as likely that they may have obtained *Nicotiana rustica* from Indians of the Eastern Woodland Area or *N. attenuata* from those of the Plains Area, as to have received *N. quadrivalvis* from any one of the three tribes of village Indians of North Dakota.

Nicotiana multivalvis Lindl., the fifth and last member of the *Bigelovii*-group to be considered, bears a striking resemblance to the type of *N. Bigelovii* and also to *N. quadrivalvis* in habit, leaves, and shape—as well as color—of the flowers. The corolla, however, is usually more than five-lobed, varying to as many as twelve or more lobes. The ovary is the characteristic feature of the species. It is composed of two circles of cells, one within the other as in the case of the ovary of the navel-orange. The capsule of *N. multivalvis* bears fertile seeds in all, or at least in most, of its cells. Such a form of ovary as this is evidently monstrous, at least from the point of view of the normal ovary of Nicotiana, and may be supposed to have been derived from a form such as the type of *N. Bigelovii* by a rela-

[1] The Tobacco Society of the Crow Indians, *Anthrop. Papers, Amer. Mus. Nat. Hist.*, vol. 21, pt. 2, 1919.

[2] Uses of Plants by the Indians of the Missouri River Region, *33rd Ann. Rep. Bur. Amer. Ethnology* (for 1911–12), pp. 43–154, 1919.

[3] Loc. cit., p. 59.

[4] Loc. cit., p. 113.

tively simple mutation. An additional argument as to the possible derivation of this species from some simpler form is the fact that it has not been found outside of cultivation.

Nicotiana multivalvis was discovered by David Douglas[1] in August, 1825. The first specimen he saw of it was in the hands of an Indian at the great falls of the Columbia River, but, although he offered two ounces of manufactured tobacco, an enormous remuneration, the Indian would not part with it. The Indians planted it away from the villages so that it could not be pulled before maturity. They burned a dead tree or stump in the open wood and strewed the ashes over the ground to be planted. Later on, Douglas found one of the little plantations and helped himself to specimens. Soon after, however, he met the owner who appeared much displeased on seeing the plants under Douglas's arm. A present of an ounce of European tobacco appeased him and the present of an additional ounce induced him to talk of the Indian tobacco and to answer questions concerning it. Douglas learned from the Indian that he put wood ashes over the ground because it was supposed that the ashes make the tobacco plants to grow very large. He also learned that this species of tobacco grew plentifully in the country of the Snake Indians, who may have brought it from the headwaters of the Missouri River which they annually visited, and have distributed it from this region and in both directions east and west of the Rocky Mountains. This suggestion of the Indian probably represents a portion of the truth as regards the travels of this species, but the general trend must have been rather from the coast to the eastward and into the interior, if the botanical probabilities are duly considered.

Through the kindness of Dr. Robert H. Lowie, of the American Museum of Natural History, I have been able to make certain that the tobacco which is of so much ceremonial importance among the Crow Indians is *Nicotiana multivalvis*. I have examined photographs of the tobacco gardens of the Crows, in which the plants showed their characters remarkably well, and also a pressed specimen of an entire plant concerning whose identity there can be no doubt.

[1] *Journal Kept by David Douglas*, etc., London, 1914, pp. 59, 141 (sub. *N. pulverulenta* Pursh).

Dr. Lowie[1] has since published his paper on the subject and brought forward much detail concerning the planting and ceremonial use of this species. In his preface, Dr. Lowie says that the Tobacco Society loomed large in the tribal life of the Crow, its ceremonial activities probably ranking next to the Sun Dance. The Crows insist that their tobacco is different from that of the Hidatsa (*Nicotiana quadrivalvis*) and botanically this idea is correct. In connection with the query as to whence the Crow, and the Hidatsa as well, may have obtained their particular types of tobacco, Dr. Lowie, in addition to the botanical evidence, calls attention to the fact that in the languages of several of the tribes using the *Bigelovii*-group of tobaccos, the root of the word for tobacco is *ōp* or *up* and that the Diegueños, the Shasta, the Takelma, the Crow, and the Hidatsa agree in this, while the tribes using other species of tobacco apply terms from different roots. This linguistic evidence is of decided interest and importance, especially when taken in connection with the close botanical relationship of the species and varieties concerned.

We have seen that the Indians of the Eastern Woodland Culture Area and of the Southeastern Culture Area made use of cultivated *Nicotiana rustica* which probably came to them through the southwestern corner of Texas from Mexico. We may now see that the Indians of the greater portions of the Plains Area, the Southwestern Area, and even of the North Pacific Coast Area used an entirely different species, viz., *Nicotiana attenuata* Torrey. The tremendous extent of that portion of North America over which this species furnished the tobacco of the aboriginal tribes is divided into a northern and a southern section, as a glance at the accompanying map will show, by the intrusion of two members of the *Bigelovii*-group, viz., *N. quadrivalvis* and *N. multivalvis*. *Nicotiana attenuata* is found growing wild over the Southwestern Area and over the southern and middle portions of the Plains Area, at least to the westward, but was cultivated over the northern portion of the Plains Area and in the North Pacific Coast Area where it does not occur spontaneously. The condition in the easternmost portion of the Plains Area is not as yet clear to me.

[1] Loc. cit.

The type specimen of *Nicotiana attenuata* came from the Washoe country in Nevada and I have reliable testimony that it is still used by the Washoe Indians, especially by the older men. To the south, it is used by the Coahuilla Indians of southeastern California,[1] and Leslie Spier has also kindly communicated to me that the Southern Diegueños about Campo, California, use this species, which they call "Coyote Tobacco," and infrequently cultivate it near house sites. It grows rapidly and high wherever the ground has been newly burned over. "Coyote Tobacco" is used by these Indians to cure colds. It is also used in the south by the Zuñi tribes,[2] whence I have received seed through Prof. A. L. Kroeber and have raised plants, and by the Tewa Indians.[3] It was used by the Utes, although not named by Chamberlain,[4] and by the Gosiutes.[5] Dr. Lowie has submitted to me some samples of the tobacco raised by the northern Blackfoot[6] which seems, although fragmentary and much broken, to show the characteristic hairs of this species. I have received from Mr. James Teit of Spences Bridge, B. C. (through the kind offices of Dr. C. F. Newcombe of Victoria), seed of the tobacco formerly cultivated by the Thompson River Indians of that vicinity and have demonstrated that the plants grown from it are true *Nicotiana attenuata*. C. F. Newcombe has informed me that he has strong evidence that this species was also cultivated by the Indians of the Queen Charlotte Islands and used for chewing. The evidence for the extent of the aboriginal use of *N. attenuata* seems to be convincing for the area as mapped and as outlined above.

Nicotiana attenuata has something of the appearance of a slender *N. Bigelovii*, but its flowers are smaller and less distinctly salverform,

[1] Barrows, The Ethnobotany of the Coahuilla Indians of Southern California, Univ. of Chicago, p. 74, 1900.

[2] Stevenson, Ethnobotany of the Zuñi Indians, *30th Ann. Rep., Bur. Amer. Ethnology*, p. 86, 1915.

[3] Robbins, Harrington, and Freire-Marreco, Botany of the Tewa Indians, *Bull. 55, Bur. Amer. Ethnology*, pp. 103–107, 1916.

[4] Chamberlain, Some Plant Names of the Ute Indians, *Amer. Anthrop.*, n. s., vol. 11, 1909.

[5] Ibid., Ethnobotany of the Gosiute Indians, *Mem. Amer. Anthrop. Assoc.*, vol. 2, pt. 5, p. 345, 1911.

[6] Lowie, loc. cit., p. 112.

the lower leaves more distinctly petioled, while the glandular hairs often have a swollen, bladdery base which, in collapse, gives a blistery appearance. This appearance is of the greatest service in identifying fragments, particularly of the calyx parts. The plant itself is tall, erect, and often slender, although very robust plants are found in favorable localities.

One of the least satisfactorily known species of Nicotiana in North America is *N. Clevelandii* Gray. I know of this species only through the dried specimens in the different herbaria in this country. The specimens referred to this species even by Gray himself vary so considerably that I feel much doubt as to the exact nature of the specific characters. I have attempted to obtain plants and seeds from students who might be in a position to collect them, but without success. *N. Clevelandii* seems to have some characters similar to those considered peculiar to *N. attenuata* and other characters similar to those of *N. Bigelovii* var. *Wallacei*. Some specimens referred to *N. Clevelandii* have more the general appearance of one of the two species just mentioned, while others are very much more like the other of the two. One suggestion which seems probable is that these puzzling plants are hybrid derivatives of the two species which they resemble. So far as may be determined, *N. Clevelandii* is confined to the coastward side of southern California, extending from Santa Barbara to San Diego. The relation to aboriginal use or culture of this species is as unsettled as its botanical status. Rothrock[1] states that he found *N. Clevelandii* only in association with shell heaps in the neighborhood of Santa Barbara, California, and, on account of the tobacco pipes found in the same heaps, suggests that this may be the species used by the tribes of Indians who made the pipes. Possibly, also, this may be the tobacco mentioned by Sparkman[2] as having been formerly used by the Luiseño Indians of southern California and called in their language "*pavivut*."

There is a very interesting species, of striking appearance, *Nicotiana trigonophylla*, in the southwestern United States, ranging from

[1] Botany, in *Report U. S. Geog. Surveys West of the 100th Meridian* in charge of First Lieut. George M. Wheeler, vol. vi, p. 48, 1878.

[2] The Culture of the Luiseño Indians, *Univ. Calif. Pub., Amer. Archaeol. and Ethnol.*, vol. 8, p. 229, 1908.

southeastern California to the western borders of Texas. Its aspect is very different from that of any other species of the genus in North America. It occurs in the lower portion of the territory occupied by *Nicotiana attenuata* where the latter species is the one usually employed for smoking. There is, however, a specimen in the U. S. National Herbarium (No. 13478), collected in Arizona by Edward Palmer in 1885, which has the note "used by the Yuma Indians." I am very much indebted to Leslie Spier of the University of Washington for the information that this species (identified by Paul Standley of the U. S. National Herbarium) is used by the Havasupai Indians of Cataract Canyon in Arizona, a branch of the Yuman stock. The Havasupai distinguish two sorts of this tobacco which look alike, but which they say smoke differently. The Havasupai cut down a mesquite tree, burn it on the unbroken soil, and scatter the tobacco seed over the dead ashes.

The remaining four species of Nicotiana found native in North America, or in the islands immediately adjacent to it, viz., *N. repanda* Willd., *N. nudicaulis* Watson, *N. plumbaginifolia* Viv., and *N. Stocktoni* Brandegee, are not, so far as I have been able to ascertain, suspected of being associated with aboriginal use, although some of them seem as well adapted to smoking, at least, as some of those which are widely used.

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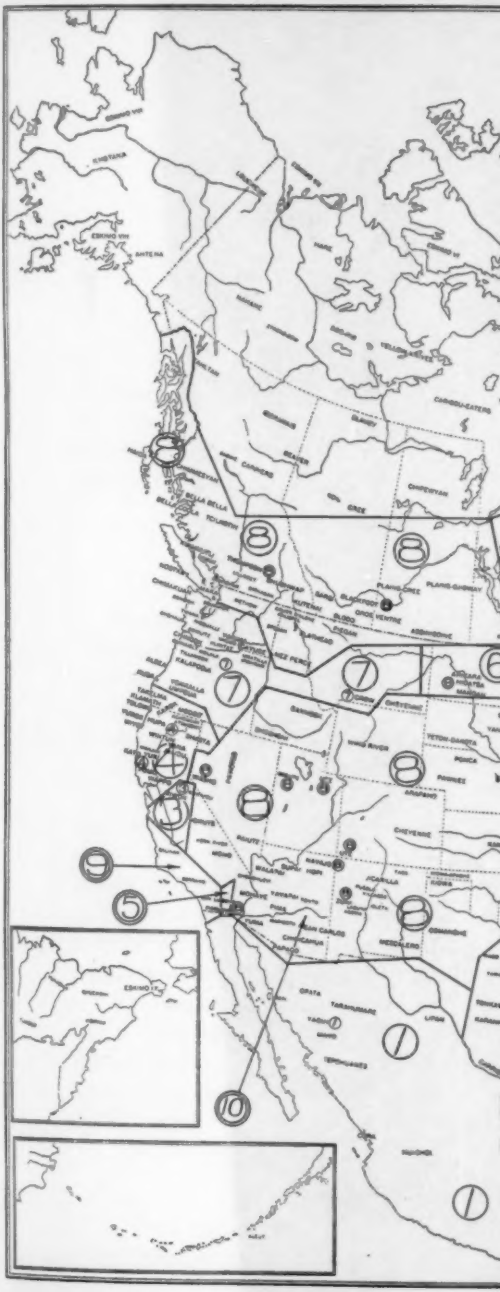
EXPLANATION OF THE PLATE

The map used to indicate the areas of use of the different species of Nicotiana in North America, is obtained from the Department of Anthropology of the American Museum of Natural History of New York City and is the same as that given by Dr. Clark Wissler in *The American Indian* (New York, 1917, fig. 103). The lines delimiting the different Nicotiana areas follow more or less closely those used to mark off the various "Culture Areas" from one another (cf. Wissler, loc. cit., fig. 67), but with some differences. Within the different Nicotiana areas, the larger number within a single circle indicates the general species used, presumably throughout the area, while the smaller number within a circle indicates a tribe definitely known to have used it. The numbers in double circles placed without the borders of the land, but with arrows drawn to indicate the regions to which they belong, indicate, with the exception of No. 10, species not as yet known to have been in aboriginal use. The following is a list of the species, each with its appropriate number:

1. *Nicotiana Tabacum* L.
2. " *rustica* L.
3. " *Bigelovii* (Torrey) Watson (typical form).
4. " " (tall form).
5. " " (var. *Wallacei* Gray).
6. " *quadrivalvis* Pursh.
7. " *multivalvis* Lindley.
8. " *attenuata* Torrey.
9. " *Clevelandii* Gray.
10. " *trigonophylla* Dunal.
11. " *repanda* Willdenow.

I am indebted to Mr. Charles E. Davis of Edgewood, R. I., for the preparation of this plate.



DISTRIBUTION OF NORTH

UTION OF NORTH AMERICAN ABORIGINAL TOBACCOS

THE SUPERNATURAL IN TONGA

By E. E. V. COLLOCOTT

IT is no longer possible to observe at first-hand the ritual of Tongan worship. Even the names of the gods are well nigh forgotten. All that will be attempted here is to bring together a few of the conceptions of the old Tongan when he came to have dealings with the invisible world, adding little, probably nothing, to the general sum of information respecting Polynesian beliefs, but merely supplying a few points for comparison from a region which has not been so fully described as some others.

Tabu

General Remarks

The main island in the Tongan Group is marked on the maps as Tongatabu, though locally it is most often called simply Tonga. Very frequently, however, it is called Tongatabu, sometimes Tonga Lahi (Great Tonga), or Tonga Eiki (Chiefly Tonga). It probably owes its appellation of "tabu" to the fact that it is the residence of the great chiefs, those who in the beginning descended from heaven, the offspring of a mortal woman and a god. These chiefs are the fount and source of chiefly influence and prestige, the head of the sacred polity of the group in its practical working. Natives say that the people of the northern groups of Haapai and Vavau would remark on the incessant tabus imposed on them when they visited Tonga on account of the proximity of the high chiefs. That can have happened, however, only in the immediate entourage of these great lords.

The idea of tabu itself is twofold, or has a twofold aspect, indicating firstly sacredness, that which is *nefas,* frequently equivalent to the holiness by which our English Bibles render the Hebrew *qadosh,* the mysterious perilousness and unapproachableness which surrounds mystic power. Besides this uncanny essence of the occult tabu em-

braces concretely the body of prescriptions which regulate the conduct of man in his relations to tabu persons and things.

Besides the simple word tabu there are several compounds in common use, the reduplicated form *tobutabu* which indicates a high degree of sacredness, as does also the word *tabuha*. There is the verb *tabui* which means "to place under a tabu," and the noun *tabuaki*, with corresponding adjective *tabuckina* and verb *tabuakii*, which are used now with the sense of bless, though if that be the precise ancient signification I am unable to say. These words are used frequently in Christian worship though I do not remember to have seen the three last in an old document. Possibly their meaning is "to invest with sacredness."

The range of ideas included under tabu is very wide, varying from the religious sanctity of gods and chiefs to the working of sympathetic magic. In its practical application to daily life it is a system of prohibitions, widening to meet the demands of religious, social, and industrial activities. Some tabus, therefore, should be studied rather for the light they throw, for example, on social organisation than as elements in definite religious practice, but whether the tabu be to ensure a satisfactory yam harvest, or to preserve the purity of social relations, or to regulate the approach of man to his gods, the sanction is in all cases supernatural, safeguarded by laws beyond mortal ken, though man may frequently rid himself, and in some cases even forestall, the uncanny vengeance of the violated tabu. Although civilised and scientific man may classify the phenomena into various groups, to primitive man they are all part and parcel of the same thing, the relation of man with the great and often terrifying body of the unknown, all included under the same word and regarded with the same awe. There is no doubt that in some directions native ideas must have been rather vague as to what would be the consequences of neglected tabus, as experimental evidence was obviously not easily come by.

From before his birth till his death, or after it, primitive man is surrounded by prohibitions of mystic sanction. It must not be imagined, however, that at the stage of development at which Tongans had arrived freedom was so curtailed, or the mind so filled with shadowy

dread, as to make life wretched. There were many tabus, but some of them resulted from the mistaken premisses of primitive science, and however ineffective their observance may have been they imposed no more toil on the laborer than a due regard to scientific agriculture entails on the white farmer. Rather less toilsome perhaps were they, but less useful. Again, in the matter of social relations the Tongan enjoyed in some respects a greater liberty than did his Christian contemporary, whilst the duties imposed by religion proper were neither oft recurring nor excessively burdensome. The fear of hell which many a primitive man has exchanged for his heathenism would seem a motive for more harrowing dread than any supplied by his discarded beliefs. A mild climate, abundant rainfall, and fertile soil, in the fruits of which all might share, went far to assure physical contentment, and, though the modern tendency is certainly not to underrate the importance of economic factors in national and cultural development, their potency in promoting material well-being is not likely to be overstated.

In passing it may be remarked that Christianization frequently means for primitive man the carrying over to a new set of objects much of the old manner of thought. Thus Sunday, called in Tongan by the Jewish name Sabbath, "Sabate," is the tabu day. The prohibitions against labor in the Fourth Commandment are naturally and properly rendered in the Tongan version of the Bible (which by the way is called the Tabu Book) as labor being tabu on the seventh day, and this idea of the tabu day is more easily assimilated and more strictly enforced than many of the more positive precepts of Christian teaching. A Tongan will not so much as pluck a flower or break a branch from a shrub on that day. Again, church buildings are tabu. The practice, not infrequent in white countries, especially in rural districts, of holding social gatherings in church buildings at which food and drink are served would be entirely repugnant to Tongan thought. From regard to sacredness, also, water from church roofs is not stored or used. It is said that a few years ago a child died in one of the Haapai Islands through drinking water which had dripped from a church roof into an empty tin placed under the eaves.

BIRTH AND PUBERTY

Before his birth the Tongan is protected by tabus which show the working of sympathetic magic. The expectant mother must not put any sort of girdle or necklace about her neck lest in labor the umbilical cord become entangled around the child's neck. The coconut for her to drink must be properly opened. There are two ways of opening a nut, one by piercing the little round eye at the stalk end, and the other by striking off the bottom of the nut, thus making a hole usually about two inches across. The pregnant woman must drink only nuts pierced at the top. Should she drink one opened by the other method her child's mouth will gape like the gaping coconut. She must not cut anything with a knife. Should she neglect this precaution her child will be marked by some sympathetic deformity, e.g., the hand may be deformed as though the fingers had been shorn off. She must not sit in the doorway of a house, lest, as she is partly within and partly without the house, her child's face reflect this local ambiguity by being differently formed on the two sides. The pregnant woman must allow no temptation to induce her to steal, as the child is sure to bear the mark of theft. Should the mother, for instance, steal a fowl and prepare it for the oven the child's legs may be trussed up like the fowl's, and so on of other thefts and their appropriate stigmata. In 1920 a woman bore a child whose hands were deformed as though the fingers had been cut off. She was questioned, and confessed that during her pregnancy she had stolen and cut up a fowl. These prohibitions for a pregnant woman apply with especial force against unauthorized meddling with her husband's possessions, though if she obtain his permission to use anything belonging to him she may do so without fear.

After confinement both mother and child are smeared with turmeric, and the mother must not leave the house or bathe for five nights, or, as we should say, five days. Bathing was also prohibited for a fixed period, in this case three nights, after a boy had undergone the operation of supercision, which is performed at the approach of puberty. After three nights the boy goes to the sea and bathes, this bathing having been called in my hearing, though doubtfully, the tabu bath. At about the same time the long lock of hair left on a

boy's head seems to have been cut. This practice of leaving a long lock is now obsolescent. One still sees it, but not frequently. It is said that the hair of the girls used to be cut short on the crown and left long at the sides, but that at puberty the hair was cut the same length all over and then allowed to grow. This treatment of the girl's hair has become even more rare than the boy's long lock and I am unable to say that I have seen any undoubted example.

Amongst the gifts at a wedding are mats, presented by the bride's relatives, on which the young couple shall lay their children when born. The happy pair rarely, if ever, use this thoughtful gift for its ostensible purpose, and indeed do not keep it for themselves at all, but let it go in the general distribution of presents at the wedding ceremony. For some days prior to the marriage of high chiefs, the length of time varying according to the period before the guests begin to arrive, native cloth for towels, and candle-nuts (with which the Tongans prepare a favorite detergent) are presented to both bride and bridegroom. The interesting statement has been made that the cloth and mats used by the bride in bathing were afterwards given to the bridegroom, but this has been categorically denied by the chief whose marriage called forth the statement, and as few have taken a deeper interest in ancient Tongan ceremonial, or are better versed in it, his ignorance of any such practice cannot be lightly set aside. In his opinion the cloth and candle-nuts were presented to the bride and bridegroom for them to cleanse and beautify themselves for each other. He added that there is always the possibility that they will not be so used, and that in any case they are distributed to the guests with the other presents. It should be added that the portion of the wedding gifts which ultimately falls to the lot of the bride and bridegroom may be very small.

It is time, however, to return to our new-born infant, whose cord has not yet been cut. The cutting of the cord was performed by the male head of the household. The midwife placed the cord conveniently, and as paterfamilias struck it asunder with an axe he uttered a wish for the future career of the child—that a boy might grow up a great warrior or fisherman, that a girl might be beautiful, and so forth. The paternal benediction not infrequently called for

success in love in the case both of boys and girls. The severed cord, as Mr. McKern has informed me, is carefully buried in some recognizable place, e.g., in a mound if there be one conveniently close, or the spot may be marked by planting a tree or shrub.

SOCIAL TABUS

Social life is guarded by tabus which in their most general form forbid an inferior to touch his superior. Dr. Martin remarks (in Mariner's *Tonga*), "Every chief also pays the greatest respect towards his eldest sister, which respect he shows in an odd way, viz., by never entering the house where she resides; but upon what exact principle, except custom, Mr. Mariner has not satisfactorily learned." This tabu noted by Mariner between brother and sister is not confined to the eldest sister, but is general. "Brother" and "sister" are of course misleading terms if understood with their English connotation. Distant cousins are included, and "collateral relatives" would better translate the Tongan words. But using "brother" and "sister" with the breadth of the corresponding Tongan terms we find that brothers and sisters are tabu to each other. A brother, if he enter a room where his sister is sitting, must keep at a distance from her, and so of the sister coming upon her brother. If a man is sitting talking to other women his sister must not approach the party at all. This tabu upon the intercourse of brothers and sisters is not entirely incompatible with cousin marriage, which may take place with the approval of the relatives on either side whose prerogative it is to secure a match for the couple concerned. When the match has been arranged the hitherto tabued "brother" and "sister" may be brought together and mated. Quite recently a youth and maid, distantly related, set their affections on each other, but when their love, which was very innocent, became known the relatives failed to smile. The girl's real brother in particular professed himself filled with shame, and the unhappy swain carried his embarrassment and stricken heart to another island. Tongan resentment, however, is short, life has resumed its normal course, and the youth has returned, though he appears to have left his unlucky passion in the place of his temporary exile.

The form of cousin marriage most favored is that of a man to his mother's brother's daughter, though other forms are possible. None of these relationship terms must be understood as connoting necessarily the same closeness of connection as in English. Cousin marriages are more common amongst chiefs than amongst the rank and file, and it is said indeed that when such marriages occur amongst the people it is in imitation of the chiefs.

Considering the social status of women the foregoing tabu between brother and sister may be part of the general system wherein the superior is tabu to the inferior, though old legends make it more probable that, at least in comparatively ancient times, the safeguard was against incest as such, though this is not in itself necessarily the explanation of the origin of the very stringent Tongan sentiment against marriage of close relatives. With reference to the expression "close relatives" a Tongan once remarked to me, "We count as closely kin those whose common ancestry is even four generations back."

A tabu still regarded is that of not eating or drinking the remains of food or drink of a superior. The penalty for the violation of this rule is a sore throat, which can, however, be cured by being stroked by the superior whose victuals have caused the trouble, or by one of still higher rank. A person suffering from a sore throat, which he suspects to have been caused in this way, will take a short cut to cure by resorting at once to the highest chief available. In earlier days the cure used to be effected by an application of the chief's foot to the sore spot, but the hand has been found equally efficacious and is now usually employed. Should anyone desire to help himself from the platter of a superior the unseen powers may be cheated by a little simple collusion. After the inferior has helped himself to the tabued viands an immediate application of the superior's hand will ward off all unpleasant consequences. It is in the item of drinking a coconut after another that this tabu seems to be most regarded, possibly because sharing a coconut is fairly common, but more probably because the coconut, being completely closed round but for one small opening, is a peculiarly fit receptacle 'o retain the influence emanating from the drinker. A similar idea to this is found in Fiji and will be noted later.

The tabus relating to contact with the body of a superior are naturally most marked in reference to high chiefs, but the respect paid to chiefs seems to be part and parcel of the general social system, throughout which the gradations of rank are well known.

The head and back are the most sacred portions of a chief's body. No one will touch the head of a superior nor pass close behind his back without apology. In the case of a great chief he would not pass there at all. In certain great ceremonial kava drinkings there is a high chief who sits, not in the ring where the majority of the chiefs have their place, called the *alofi*, but in the portion of the ground where the kava is prepared, called the *toua*. But although this chief is called the chief of the *toua*, he sits by himself at some distance to the rear and side of the group who are brewing the drink, so that all work in connection with the ceremony is performed without anyone's passing behind him. So in the *alofi* the attendants as they come and go always pass within the circle, before the chiefs, and never outside, behind them.

Eating and drinking in the presence of a high chief of greatly superior rank to oneself is tabu. A great chief himself may experience this inconvenience in the presence, e.g., of the king. This has been noted by old voyagers, and an example came under my notice within recent years. A white lady invited the late king of Tonga and a couple of high chiefs to dinner. One of them was able to eat freely in the presence of His Majesty, but the other, a robust young man who might have been expected to own a healthy appetite, toyed with his food in embarrassment. Afterwards he laughingly remonstrated with his hostess for her unkindness in setting such an excellent dinner before him in the presence of the king, where he was unable to do justice to it. This tabu against eating in the presence of a high chief may be overcome by retiring to a short distance and turning the back to the great lord.

Leaving the matter of eating and drinking to return to respect to the person of superiors, we find that if a chief be sitting with some utensil close behind him which the people about wish to use, their only hope is that the chief will himself notice their predicament and tell someone to come and take what is required. Otherwise they

must make shift to obtain elsewhere a utensil fitted for their purpose.

A strict regard to the tabu surrounding the persons of superiors would introduce almost intolerable inconveniences into the relations of intimate domestic life, but although there is considerable relaxation the tabu of the head and face is observed fairly strictly. A father's head is tabu to his child. There may be Tongan fathers who would pick up their children and let them pull their moustaches or hair as many a white father does, but they can not be numerous. The Tongan father does not nurse and caress his child as freely as the European father does. There are doubtless other considerations operative, of which, by the way, lack of natural affection is not one, but probably the most potent reason is the tabu of the father's person.

DEATH

In the treatment of the dead the working of these ideas is clearly seen. The body is prepared for burial by those of family rank superior to that of the deceased, who had been able to approach him freely during his lifetime. Relatives and friends of inferior rank will pay a farewell visit to the deceased shortly after death, but the visit is short, and during it they sit at a respectful distance in that part of the room towards which the feet of the body are pointing. The visitors may indeed kiss the face of their dead friend (probably an innovation since the introduction of Christianity), but after bestowing the kiss they at once retire to a proper distance. There are those who kiss, not the face, but the feet of the deceased. Ordinarily the body is prepared for burial by those whose relations to the deceased enable them to approach him freely, and they sufter no inconvenience from the contact. In the case of high chiefs, however, the last offices are of necessity performed by those of inferior social status, and their hands are thereafter tabu for a certain period, during which the tabued person may not feed himself. It has not often been the fortune of Europeans in these latter days to see a person with tabued hands, but the Rev. C. P. Walkden Brown, late Chairman of the Methodist Mission, who left the group in 1908, was on one occasion present at a Tongan feast in company with a man under this interdict.

The rites in connection with the burial of great chiefs have fortu-

nately been described by early travellers with a considerable amount of detail concerning ceremonies unfamiliar to the present generation of Tongans. The European custom of wearing black clothing and black arm bands as a sign of mourning is now universal and carried through much more completely than is usual amongst Europeans, especially in these hot tropical latitudes. In addition the old Tongan practice of wearing a ragged mat is still adhered to. A mat, other than the cloth loincloth, is a mark of respect to superior rank. In the item of the mat as a sign of mourning close relatives of the deceased will wear a ragged mat, but those not nearly akin to the deceased will wear a good one. As a mark of respect to a chief if a mat be not obtainable any sort of belt seems to answer the purpose. A few years ago I was working with some boys a few hundred yards from the beach. The king was on a visit to our island and happened to be standing at the time near the beach. None of the boys would even remotely approach the place where His Majesty was without first girding himself with a piece of mat or some substitute. Some of the boys wound a length of a creeping vine about themselves. Old travellers have noted that, in the presence of a chief, people who happened to be clad about the shoulders turned their clothing back to the waist. It was tabu to have the native cloth (ngatu) about the body, but the mat (fala) around the waist, even if it extended higher up the body than was permissible for the cloth, was not only allowed but enjoined as a mark of respect. The leaves of the ifi (Tahitian chestnut) around the neck were a sign of the utmost respect, and regularly worn by those who had a great boon to ask.

Anciently the disposal of the body of a man of insufficient social elevation to be possessed of a soul seems to have differed considerably from the elaborate ceremonial which marked the interment of a high chief. This is only to be expected, as the chief's body has been the temple of a spirit which lives on in Bulotu, although apparently capable of revisiting his earthly shrine, or in some other way exerting influence in its vicinity. The commoner's body was not the seat of a soul and its neighborhood was less likely to be made uncomfortable by ghostly disturbances. This apparently straightforward division into chiefs and commoners is not so simple as it looks. It would

probably puzzle most natives to draw the exact line at which the class of the soul-bearers ends and that of the soulless begins. Chiefs were buried in cemeteries (to which amongst other names that of *malae* is applied), whilst the lower orders were interred in some convenient place close to the dwelling. A man living alone would perhaps be buried inside his house and the house then deserted or even burned down. The members of a more numerous household would be buried round about the house, and when say half a dozen had been thus disposed of the survivors would seek a fresh site for their habitation. Christianity has endowed the common folk with souls, and promoted their mortal remains to the dignity of as careful interment in cemeteries as that enjoyed by their "betters." In speaking of a very high dead chief it is not uncommon to refer to him as "the chief in such a burial ground, or malae." The highest chiefs are often said to be "away," or "at a distance," when their death is spoken of.

After the death of the late King George II, in 1918, the body lay in state for several days (not an ancient custom), and every night during the lying in state multitudes of lanterns were burnt about the palace, and little fires completely surrounded the compound. These were tended in silence during the night, and might not be extinguished until the first had been put out by one of the very few persons—one at least of whom was a woman—of sufficiently high rank to give this signal. In this, as in other matters, foreigners are exempted from the tabus which bind the natives. One morning when a native able to extinguish the first flame was not at hand the services of an Indian cook were requisitioned, or were just about to be when a native appeared who was entitled to perform this ceremony. In the case of the kings the tasks connected with their burial are largely in the hands of the craftsman class or hereditary guild (*haa tufunga*). The tombs of the old Tongan kings stand in inviolate sanctity in places almost untrodden by human foot, and the gloom of forest and thicket enshrouds these abodes of supernatural dread. In modern times the Christian care of the resting places of the dead has overcome the old avoidance of burial-places. The present kings of Tonga, moreover, are buried in the town of Nukualofa, the capital, and the necessity of keeping such a site clear is modifying the old tabus.

THE TUI TONGA

The Tui Tonga when travelling was frequently borne on a litter, though land on which he stood, or houses into which he entered, did not become tabu and therefore unavailable to their former possessors or users. Mats and cloth which he used seem not to have returned to their former owners, but to have become the property of the Tui Tonga. Such articles he seems frequently to have passed over to his retinue. The tabus surrounding the Tui Tonga's person were of course strict. The London Missionary Society's missionaries who arrived in the *Duff* in 1797 relate that the Tui Tonga going into their house in western Tongatabu requested that they shave him. This ceremony of the toilette was performed, but until everything was safely finished the natives about were in the greatest trepidation lest some of the sacred hair should fall to the ground. The operation of supercision could not be performed in Tonga on the Tui Tonga. He had either to go without the operation or visit Samoa or Fiji for the purpose.

CEREMONIOUS SPEECH

An interesting example of the tabu surrounding the great chiefs is seen in the opening of ceremonial speeches in their presence. The speaker clears away, group by group, the tabus that would prevent his speaking. He says "Tabu for such a one," using an expression which it is exceedingly difficult to render into English, but whose real significance seems to be, "With all due regard to the tabu of So-and-so." This introductory apology having been completed the speaker will say, "It is now permissible for me to go on with my speech." There are two important sets of these tabu formulae, one for the Tui Tonga chiefs and the other for the Tui Kanokubolu, but naturally enough the practice of thus prefacing a speech is widely extended. In sermons, ordinary addresses, and in conversation, anything which the speaker feels should be introduced "saving the presence of" his auditors will be introduced with this apologetic preface. Especially is this the case when mentioning bodily infirmities to a person of superior rank. A commoner would scarcely mention at all a physical defect of a chief to whom he was speaking, at any rate without the license of intimately friendly conversation, but in men-

tioning the ailments of himself or of some other person, at last coming to a point where description languishes for lack of an outright term, the dreadfully blunt truth must be told, "Tabu to you," and the exact condition of a leg or an eye is detailed. Matters which are treated with great reticence by Europeans are discussed by mixed companies of Tongans with perfect freedom and complete absence of embarrassment.

INSTALLATION OF TUI KANOKUBOLU

No important ceremony is conducted without kava drinking, and in the preparation and serving of the kava is seen the flower of Tongan ceremonialism. Usages vary in the two great houses of the Tui Tonga and the Tui Kanokubolu. The modern consolidation of the kingdom has confirmed the power of the Tui Kanokubolu, and the office of Tui Tonga, although the higher in rank, has been abolished. In 1918 the present queen ascended the throne of her island kingdom with the title of Tui Kanokubolu, the title which was borne by her predecessors in the sovereignty of this now constitutional (on European lines) state. Besides a European crowning there was also an installation by the old kava ceremony. This was anciently performed at Kanokubolu, whence the title of Tui Kanokubolu (King of Kanokubolu) is derived. Kubolu is the same word as the Samoan Upolu, and legend asserts that this line is descended from a Samoan woman and a Tongan chief. Kano is a root found in words meaning "flesh," "body." The late Dr. Moulton renders Kanokubolu as "Heart of Upolu." In Kanokubolu the king used to be installed with his back towards a certain tree, and the ancient requirements have been met in modern practice by letting a piece of wood from the traditionary tree into the back of the throne. The water for brewing the kava was on this occasion brought by a great number of runners from a supply a short distance away. So freely and with such obvious intention was water spilt as to suggest a charm, but good Tongan authority asserts that the water was spilt so that each man might arrive at the bowl with but little, and that the whole proceeding might be marked by the maximum of bustle and activity on the part of as great a number as possible to show the numbers and

zeal of the queen's followers. The strainers (bunches of wild hibiscus fibre) were provided by special groups whose prerogative it was, and represented certain chiefly families.

During the ceremony three conventional speeches were delivered by three chiefs belonging to the Tui Kanokubolu group, who each before speaking slid forward without rising, with two little jerks, returning in the same manner to his place when his speech was finished. These speeches followed traditionary forms, and were exhortations to the Tui Kanokubolu and the people to do their duty to the Tui Tonga chiefs. The first referred to shell-fishing, the second to the bonito fishing, and the third to the fruits of the soil.

An interesting feature of these ceremonies was a man belonging to a family which is connected with Fiji, who was decked out like a Fijian warrior. He preceded the royal procession to the ground by about a hundred yards or so, crouching and running and looking about like an outpost spying out the enemy. When the queen was seated he violated all tabus and rules of ordinary decency by taking up his station near her, passing freely behind or before her, smoking whilst standing or lounging close beside her, and finally, when the pig's liver which is customarily offered to the chief on such occasions was put before the queen, he broke off a piece on the point of his spear and ate it in her presence.

The sanctity of the great chiefs is well illustrated in an interesting native manuscript which was made available to me by the kindness of the Hon. W. Tungi and Mr. E. W. Gifford. In these notes the special words applied to the highest chiefs, the Tamaha and the Tui Tonga, are called the *tobutabu* insignia, the most sacred insignia. Since the institution of monarchy on the European pattern the Tui Tonga words are applied to the reigning sovereign.

FISHING

Industries have their own tabus. I have been told that formerly a woman must not step over the green shoot of a sprouting yam, though this is not now regarded, and young women of the present generation whom I have questioned know nothing of it. It was also tabu for anyone to step over a fishing net whilst it was being made.

Presumably if men passed from one side to the other of the net the fish would do the same. The various sweet-smelling flowers which are used to adorn and scent the leaf-girdles which are always worn on festival occasions by both men and women, but particularly by the women, are protected by a tabu belonging to the range of sympathetic magic. Flowers that have been used in the leaf-girdle must not be burnt before they are quite dead and dried up. Should this tabu be violated the tree from which the burnt blossoms were taken will thereafter be useless for supplying flowers for the girdles, and any blooms plucked from it will quickly fade. It is only the individual tree which is affected, and flowers from other trees of the same species will retain their scent and freshness as before.

Fishing, an important industry of the inhabitants of these tiny islets, and one moreover subject to alternations of success and failure, of calm tranquillity and boisterous hazard, from causes which it is frequently difficult either to foresee or to explain, retains in large measure its old safeguard of tabus. If a man be out fishing and someone inquire of his wife where he is she must not tell. Better to sacrifice the truth than her husband's luck. This tabu, however, is now falling into disregard. The best known tabus are those concerning the bonito and the shark. The bonito whose origin, or at the least first arrival in Tongan waters, has a supernatural connection with the Tui Haangana, the chief of the island of Haano in Haapai, will not suffer himself to be caught off that island if the chief ventures outside his house whilst bonito are in the vicinity. A similar tabu keeps one of the chiefs of the eastern end of Tongatabu within doors when the bonito appears. There is also a proper order for the disposal of the first-fruits of the bonito fishing in Tongatabu before the fish is available for the people at large.

Of no fishing is the ritual more exact and more flourishing today than that attending the pursuit of the shark. The most perfect harmony, even of thought and sentiment, must prevail amongst the fishermen and amongst their friends and relatives ashore. Discord or the hidden rancor of the heart is fatal to success. A young woman relates that in her childhood, as a party of shark-fishers were setting out, she cried to be taken with her father who was a member of the

expedition. Every means was tried to pacify the child, but in vain. The situation was extremely awkward. On the one hand was the difficulty of taking the girl, and on the other the futility of hoping to take a shark if she were left weeping ashore. Finally, as the child refused to be comforted, she was perforce taken on board. The shark-fishing has been described in his book *Chez les Méridionaux du Pacifique,* by His Lordship Bishop Blanc of the Catholic Mission in Tonga, or P. Soane Malia as His Lordship was called at the time of publication.[1] Before the expedition sets out a house ashore is shut up and becomes tabu. "This house had just been carefully shut, shortly before the departure of the fishermen. It was that of the head man. Its being closed and the departure of its owner gave it a mysterious character; it became 'house of the fishing,' that is to say a place to which approach was forbidden to everybody until the return from the fishing." The shark is taken by a running noose on the end of a line, and is enticed alongside the boat by sounding with the coconut-shell rattle formed by threading coconut-shells on a stick, and by the fishermen calling out. The crew not only call to the shark to come, but add many blandishments, with flattery of its beauty and wily promises of high festival ashore. The subsidiary inducement of a piece of roast pork displayed outboard is not wholly discountenanced.

When the shark has once come alongside his fate is usually sealed. The noose is slipped dexterously over his head, and if necessary a man will even jump into the sea to make a better adjustment of the cord. Non-success in this sport is attributed to broken tabus. On the occasion which Bishop Blanc describes nine sharks were taken, and it may be best to quote a little of the conversation which he had with the head of the expedition after its return:

"And you have done this (i.e., called and taken a shark) nine times?"

"Yes."

"And the shark always comes? It always obeys?"

"When it does not come that is a bad sign. There is something in fact which prevents the shark from coming."

[1] It was published by Librairie Catholique Emmanuel Vitte, Lyons and Paris, 1910.

"And what then?"

"When it does not come there is nothing to do but return to shore, because that is the proof that someone has violated the tabu of the closed house, or perhaps that one of us has some grudge or anger in his heart. So we must go and correct what is amiss, and then the fishing may recommence."[1]

The shark indeed is a great searcher of the heart, and the man who attempts to approach the cavern where resides the great shark-god of the island of Eua will find himself unable to reach the spot should his heart be not as it should be. Although particularly notable in the case of the shark the same type of idea is found in fishing generally. Persistent ill-luck gets a boat a bad reputation which reflects more on the ethical qualities of crew and owners, and of the boat herself, than on their skill as fishermen. "The fishing is accursed; let us go ashore."

Gardens were protected by tabus. Frequently a coconut-leaf representation of the shark was put up on the trunk of a tree, which was as effective as turning the shark-god Taufa loose in the garden. It is stated that Taufaahau, better known to Europeans as King George I—under whom, after many years of strife, Tonga became a homogeneous kingdom with Christianity universally and firmly established throughout the group—experimented with some of these tabu signs to assure himself of the impotency of the old gods, and also made the more daring test of swimming out to the opening in the reef of the island of Lifuka in Haapai and shouting defiance to the sharks.

SIN

A general idea of the sort of conduct that was ethically right is obtained by attention to the words which indicate wrong-doing. This is too lengthy an inquiry to be entered on in any detail in this place, but to inquiries as to what conduct would be formerly included under the word *hia,* which is commonly translated "sin" but is today too much mixed up with the modern machinery of law-courts to afford a clear idea of its ancient significance, it was answered murder and connection with the wife of a man of superior rank to the offender.

[1] Op. cit., pages 59 and 60.

Another native, commenting on sexual breaches, remarked that a man who violated the wife of a great chief would be slain by his own people. There would seem to be little doubt that if any such hardy lover escaped the vengeance of mortals his offence would not pass unnoticed of the unseen powers. In fact an instance of this sort was recently related to Mr. Gifford and myself. A man of considerable rank had gone from the island of Eua to Tongatabu and was living in close and friendly connection with the reigning Tui Tonga. The latter went on a voyage to Haapai shortly after one of his wives (not the chief wife) had given birth to a child, leaving the mother and babe to the care of the Euan whose relations with his fair charge soon became too fond and intimate. As a consequence of his wife's frailty the Tui Tonga found on his return that the child had fallen ill. The secret of the guilty pair had, however, not yet been divulged, and recourse was had to the lot, by spinning a coconut, to discover the person whose wrong-doing was responsible for the royal infant's alarming condition. The lot fell between the Tui Tonga himself and his unfaithful spouse. The next spin brought the guilt right home to the woman who confessed her sin. The story ends in a manner to satisfy the most susceptible reader of love romances. Not only did the Tui Tonga forgive the lady, but he bestowed both her and the infant on the successful lover, and all three removed to Eua where the child became the progenitor of a line of chiefs. It was apparently no uncommon thing for a village to choose a handsome girl to take to a high chief that she might bring back to them a chiefly child. Such a child was called by a word indicating that he was not so much the possession of an individual mother as of the whole village or family group.

The consequences attendant on illicit love affairs are often illustrated today. Not infrequently a man and woman who do not desire to marry, or are unable to because of some previous union, take an oath of mutual fidelity on the Bible. Various circumstances may make them desire to be rid of this bond. Perhaps if the woman is married one of her legitimate children falls ill. One of the parties themselves, or one or other of their relatives, may become sick, or die. Although no entanglements of this sort may be impeding the course

of true love, errant fancy may have been attracted by some other charmer. In all cases the procedure is the same. Recourse is had to a white missionary or native pastor to dissolve the oath. In the cases that have come to my own notice the clergy, European and Tongan, have refused to be parties to this superstitious use of the Bible, and have sent the suitors away with a little healthy advice.

In reference to murder Mariner remarks, "An old mataboole used to say, that useless and unprovoked murder was highly offensive to the gods, and that he never remembered a man guilty of it but who either lived unhappily, or came to an untimely end." The gods sometimes turned peevish for less weighty reasons than wanton homicide. Soon after the introduction of Christianity into Tongatabu, and before it had spread throughout the whole island, Boiboi, the chief of a still heathen district, became very ill, and was carried on a stretcher to the priest of his god. After a time the priest was seized by the convulsive movements which indicated his possession by the deity, and then informed the waiting assembly that the god had been away in a different part of the island at a single-stick match, but had now returned. He had been very angry with Boiboi because the latter used to make an insulting gesture with his eyes, but he was now reconciled to him, and the chief would recover. Boiboi honored the declaration by an immediate recovery, and rising from the stretcher he went off quite well.

Mana

General remarks

Another important conception, shared by the Tongans with their neighbors of the Pacific, is that of mana. Whilst tabu inculcates the duty of man towards the occult, mana indicates the mysterious forces in operation. The range covered by this idea is very wide, and there has sometimes been a tendency to dogmatize too positively on the inability of peoples at the Tongan level of culture to conceive abstractions. Mana is rendered in English as a wonder or miracle, and is employed in this sense in the vernacular version of the Bible. It is a common word for thunder. An adjective (*mana'ia*) containing this root is used of a man who is especially attractive to women. It

probably occurs in the word for breath (*manava*), which again is used of the womb, though apparently without strict anatomical precision. This same word is found in compounds meaning fear (*manava-jii* "little manava or breath," *manava-he* "wandering manava"), and courage (*manava-lahi* "great manava"). Taking this class of words together the primary significance of mana seems to be living power or force, and the word for breath and womb perhaps means the place or seat of this power or force.

OMENS

The occult forces of the universe frequently manifest themselves as warnings to mankind, and hence arises one of the commonest uses of the word mana, namely an omen. Many of these omens are still known and more or less believed in. A considerable number are concerned with impending calamity to a chief. Usually of course the portent would occur in a locality or in an object which had some relation to the threatened lord. In the island of Uiha in Haapai is a spring which turned red as a warning of the approaching death of the chiefs connected with that place. A rock in the western district of Tongatabu indicated in some way a similar catastrophe. The breaking off, in calm weather, of branches of the banyan tree is an omen of the death of a great chief. The large tree in eastern Tongatabu under which Captain Cook addressed the natives fell down a few years ago, and this proved to be an omen of the death of the late King George II, though His Majesty survived the tree by about two years. The roaring of the sea on the wide flats skirting a good length of the shore of western Tongatabu is also the sign of the death of a chief. At the time of the death of King George I there was an unusually protracted spell of rainy weather. This too was mana, though apparently not so much an omen of the king's approaching end as a sympathetic disturbance of the supernatural powers accompanying the passing of this truly great man. Some still affirm that this king's death was presaged by the approach of a great shoal of fish to the coast of Tongatabu. At Kolovai, in western Tongatabu, the village of the high chief Ata, are several casuarina trees where the flying-foxes are protected by a tabu. These trees with their clus-

ters of animal fruitage have often been photographed, and are widely known. Tradition speaks of a white flying-fox whose appearance is the sign of the approaching death of Ata. The other flying-foxes give this uncanny visitor wide elbow room. The tradition of the occasional appearance of a white flying-fox is correct, as the present Ata has seen no less than three—the last no longer ago than last year. This last one, maimed by a broken wing, fell into the possession of Ata himself, who was tending it, purposing on its recovery to present it to the queen, but unfortunately dogs or pigs snipped its vital cord. Ata, who is a very robust and athletic man in young middle life, has manifested no alarming symptoms as a result of being honored by a visit from the ominous creature. A white flying-fox figures in an old story as being used for divination by Bunga, chief of Boha in eastern Tongatabu.

Mr. W. H. Murley of Haapai and Mr. Gifford of the University of California have severally come across instances of fog being regarded as ominous of the death of a chief. Difference of opinion evidently prevails as to the rationale of this portent. Mr. Murley, who is exceptionally well versed in Tongan custom and tradition, speaks of a mist on the sea as ominous, whilst very good native opinion has assured me that the mist only presages evil when it is over the land. Several birds are also ominous. Should a traveler find a kingfisher persistently flying about him, that is a warning to relinquish his journey and return home. The hooting of an owl in the evening near a dwelling is the publication of the pregnancy of a woman in the house. The crowing of a cock in the afternoon (perhaps early evening) is a harbinger of evil unless he be answered by another cock. The crying of the rail at night is an omen of death, and the direction of his flight indicates the place in which the doomed person shall be buried. Mr. Murley notes that as he was sitting with a native a kingfisher entered the room, and his native friend became very uneasy at this circumstance as a portent of evil. Not only the kingfisher is thus ominous. Mr. Murley's friend informed him "that evil spirits come in with the rubbish, and lizards and rats as well as kingfishers." A similar instance came under my own observation. A *fuleheu* (*Ptilotis curunculata*) came into my room, and a native

girl who saw it told me it was a sign of bad luck, without however appearing to attach much importance to the matter. It is not clear whether her unconcern was due to her enlightenment, or to indifference to my fate, or to the hope that being a foreigner I should be able to pull through all right.

MANA OF MEN AND INSTRUMENTS

These manifestations in the seen world of purposes of the unseen world are mana. These are merely a few examples picked up here and there, and doubtless the list could be much extended. But supernatural power may also reside in a tool or weapon and become a mighty instrument in the hand of man. The club or spear of a great warrior, for example, is the abode of mana. The club of the chief Vahai was so charged with mana that it could not keep still, but was continually agitated by convulsive movements. Vahai kept this formidable weapon wrapped in a mat in his house and on one occasion sent a man to bring it to him. The messenger could see no club, only a bundle of mat agitated by an apparently living body, and returning to the chief told him that the only thing in the house was a child wrapped up in matting. The supposed child was of course none other than the club with its high power mana, and the man was again sent to fetch it.

Mana could be communicated from one person to another. If a weapon in which resided this supernatural force were borrowed the owner laid it across the open palm of the borrower, and then, getting a piece of the stem of the banana tree, rubbed and squeezed it in his own hands, thus expressing the juice. Then he rubbed the banana stem over the weapon and the open hand of the borrower. Vahai, the owner of the club just mentioned, conveyed to another chief, Takai, his own martial courage and prowess by performing a like operation upon his body. In these examples the warrior himself would seem to be primarily the source of the mana, thence conveyed to the weapons which he victoriously wielded; but from other statements it appears that the weapon itself might receive an inspiration of mana direct from the gods. In the account of the voyage of the missionary ship *Duff* weapons are spoken of as placed in temples to

obtain the coveted power: "From this we passed to the other large house which . . . was sacred to the God of Pretane, and in which old Mumui sleeps when indisposed, in hopes of a cure. On the floor were four large conch shells, with which they alarm the country in times of danger: and on the rafters were placed spears, clubs, bows and arrows, to receive from their imaginary deity supernatural virtue, to render them successful against their enemies." The Tongan philosopher was doubtless little troubled by questions as to whether the man gave the weapon the mana or the weapon gave it to the man. Traced to its ultimate source it was ever the gift of the gods.

APPARITIONS

The mana was occasionally a mysterious visitor from the other world. As an example it was said that a man might suddenly see the supernatural personage in his boat. The boatman would treat the apparition with the greatest respect, and set off home with as little delay as possible, convinced that some mishap had befallen. The recipient of such a visit would consider it a mark of divine displeasure, and would ask the sprite what wrong he had done, and why he was angry with him.

Mr. Murley's manuscript contains concrete examples of supernatural visitations. In July, 1909, on the night before the death of Maealiuaki, a great chief, at the time governor of Haapai, a man and his wife who were fishing on the island adjoining that on which the sick chief lay at the point of death were much alarmed at the sight of a sailing-boat, brightly illuminated with various colored lights, rapidly approaching from the southeast. This was of course a mana of Maealiuaki's death. That year of 1909 was fertile in portents and fortunate in chroniclers, for another of Mr. Murley's informants told him that in that same month of July, 1909, a small boy in the island of Niua Foou received a visit from a stranger who asked him if he knew the reason of the frequent earthquakes. The child confessed his ignorance, pleading his extreme youth. With the sinister words, "Then thou wilt know, for in the month of September you people will not be able to eat for something dreadful will occur," the stranger departed as abruptly as he had come. As he turned to go the boy

was startled to see that he had wings. This last touch is probably due to the influence of the Bible. Like a wise soothsayer this visitant, though so precise with regard to months, allowed himself latitude in years. In September, 1912, there was a volcanic outburst in Niua Foou, though not very serious and unattended by loss of life. This doubtless is a suitable event to carry the responsibility of the doleful vaticination regarding the month of September.

DIVINATION

The fact that supernatural forces and beings manifest themselves through material agencies would invest with importance the office of those who were skilled in reading the signs. One Tongan stated that those who had no god to apply to had recourse to a diviner (*tongafiji*), adding the interesting detail that there was aruspication by examination of the blood of animals. Another said that he thought that each god had his own diviner, but the most trustworthy statements show no evidence of a class of diviners attached to the gods apart from the priests. A certain cowrie shell god used to give indications of his will by movements, as by standing up on end. War clubs, presumably those kept in the temples, were consulted on the expediency of going to war. If the club shook that was the god giving his vote for war, but if it remained still that was a declaration against the opening of hostilities. Whilst, however, the interpretation of the will of the gods was the function of the priests, there were diviners (*tongafiji*) who, without being priests or being attached in any special way to a particular god, were able to see what was distant in time and space. The word *kikite* which is used of divination and foretelling seems to contain the same root as the word *kite* which is used of the appearance of anything at a distance, particularly of land showing up when one is out at sea. I have not been able to discover that these diviners were reputed to be inspired by any god, but they seem merely to have seen and declared things by some inward light of their own. A rather circumstantial account is preserved of a famous soothsayer named Hema who knew from the island of Eua the progress of a single-sticks match in Tongatabu in which a local champion was opposed by a mighty fighter from Eua. Hema kept the Eua people posted

on the progress of the contest with the promptness and certainty of a wireless installation and had the melancholy duty of informing them of the defeat of their own champion. His best remembered exploit was that of telling a chief the time at which a pet bird, which had flown away and was many days overdue, would return. Not content with the bald statement as to the day and time at which the chief would again see his bird he gave a detailed itinerary of the homeward flight.

A rather peculiar idea belonging to the same range of conceptions is seen in the power asserted to have been possessed by the chief Loau of Haamea in Tongatabu of knowing everything that was going on everywhere. Loau occupies a unique place in Tongan history, for though he is undoubtedly a historical personage and is asserted to have left a deep and enduring mark on Tongan polity, no place is assigned him in any of the known chiefly families. He came none knows whence and departed none knows whither. His name is connected with the small district called Haamea near Nukualofa, but the spot within Haamea on which he lived is named Maananga, and it is said that quietly at home at Maananga he knew all that was going on elsewhere, whence the word *toka-i-maananga* (known in Maananga) is used of omniscience, and is so used today in Christian worship.

In passing it may be noted that the Tongans assert that there have been navigators so skilful that they could tell their whereabouts when out of sight of land by dipping their hands into the sea and scooping up a little of the water. Looking at the sample of ocean the gifted mariner would say "This is the sea of Vavau," "of Tongatabu," and so forth, and thus get his bearings. The last man who possessed this power has not been dead many years.

The old story of Muni of the Torn Eye relates that Bunga (Coral), a chief in the east of Tongatabu, had a white flying-fox which he used for divination. When Muni, whose legendary exploits are strongly reminiscent of those of the god Maui, visited with hostile intent the home of Bunga the latter was out at sea fishing. His flying-fox at once flew out to him, and Bunga, suspecting that matters of grave import were afoot, set himself a sign whereby he should know by the part of the boat on which the creature settled whether

the omen were good or evil. The portent was of bad tidings, and Bunga returned to shore with all possible speed to find that his harem had been ravished (success in the feats of love, as in those of war, being here as elsewhere a mark of the legendary hero), and two great kava plants which had stood near his house torn up and carried away. Bunga pursued Muni, but in the contest which followed he was defeated though not slain.

Old travelers mention a wooden bowl used for divination. The Introduction of the *Voyage of the Duff* in referring to Tasman's visit says, "An elderly chief who seems at that time to have had sovereign authority . . . was highly gratified by the presents made him. Among them was a wooden bowl, probably the same that long afterwards was used by the sovereigns of Tongataboo as a divining cup to convict persons accused of crimes; and the same homage which is rendered to the sovereign when present was paid during his absence to the bowl, as his representative." Later on in the same Introduction it is stated that the king, dining with Captain Cook on board the latter's vessel, was presented by him with a pewter plate, which he said he would substitute for the bowl "which had before sustained the offices of chief justice and viceroy." This pewter plate was still in use at the time of Mariner's residence in Tonga, and Mariner speaks of it as used to remove the tabu from those who had come in contact with the Tui Tonga. "If anyone is tabooed by touching the person or garments of Tooitonga, there is no other chief can relieve him from his taboo, because no chief is equal to him in rank; and, to avoid the inconvenience arising from his absence, a consecrated bowl (or some such thing), belonging to Tooitonga, is applied to and touched, instead of his feet. In Mr. Mariner's time, Tooitonga always left a pewter dish for this purpose, which dish was given to his father by Captain Cook." Probably the account of the bowl or dish representing the Tui Tonga in other affairs besides the removal of tabu is correct. It should in any case be fairly easy to avoid incurring tabu by contact with the Tui Tonga's person during his absence.

Augury of an informal sort was often resorted to much as it is by some Europeans. The first native Christian teachers on their way from Tongatabu to Haapai, which was still heathen, set themselves

as a sign that if they met a certain man wearing a ragged loin-cloth they would know that they had to expect opposition. During the time when Taufaahau (King George I) was hesitating between Christianity and heathenism a shark came alongside the boat in which he was one day sailing. He seized his spear and made his throw an augury. If he missed, the shark was the god Taufa-tahi (Taufa of the Sea), but if his aim went true then it was just a shark. He missed, and thereupon threw into the sea two native Christians who were with him. The ancient Tui Tonga, Kauulufonua, in the midst of his victorious career, declared on the eve of battle that in the coming fight his followers should know whether his prowess were the effect of his own might or of the protection of a god. If he were wounded in front he owed his victories to the god, but, if behind, to himself. The event showed that he owed his successes to his own courage and skill.

Mariner relates that the spinning of a coconut and observing its position when again at rest was a common method of interrogating the unknown, particularly as to the fate of sick persons. An instance of this has already been mentioned.

Witchcraft

Something has been said of magic when speaking of tabu, but a few further notes may be added. A non-malevolent but extremely disgusting example of sympathetic magic was related to me by a friend. On one occasion whilst he was at sea and exceedingly seasick an old native, unable any longer to endure the sight of his distress, begged to be allowed to drink his vomit as a sure way of checking his sufferings. In my friend's case the mere suggestion threatened to be effective by depriving him once and for all of all the organs by virtue of which a man can be sea-sick.

But given magic there naturally follows man's effort to gain magical control over his fellows. The usual terms applied to the black art in Tonga are *hangatamaki* and *fakalouakau*. An excellent note on the former term is contained in Mr. Murley's manuscript. He points out that the word hangatamaki, which is very freely used in descriptions of illness, covers a large range of disorders, principally of the

boil and ulcer sort; that further there are different individuals who specialize in the cure of different diseases. Should a man desire, for example, to put a tabu on his plantation, he will go to a person who has the reputation of being able to cure some sort of hangatamaki with the request that this medicine man (or woman) assist him with his art. The practitioner then makes up little bundles of medicine and hangs them about the premises it is desired to protect. Should anyone, even the owner, dare to break the tabu and touch anything on the property he will be afflicted with the special hangatamaki in which the medicine man consulted specializes, who again is alone able to cure these punitive visitations, which he will be quite ready to do—for a consideration. When it is desired to remove the tabu the owner and the medical practitioner together go and take down the packages. The practice of putting a plantation under the protection of a shark god has already been mentioned.

In 1917 a man died in Tonga as the result of the black art as practised on him by a man of Fiji. In this case the witchcraft was described by the term fakalouakau, that is "by a leaf," or "making a leaf." It seems that a year or two previously the unfortunate victim had been on a visit to Fiji, and had been put under the spell of fakalouakau by a native of that country. Report hath it that contemporaneously with the death of the Tongan the maleficent Fijian also met his own end. One method of practising fakalouakau is to get something which has been in close contact with the person on whom it is desired to operate, e.g., nail-parings, and wrap it up and bury it. As the buried object rots a sympathetic disease will appear in the victim. One man in discussing these matters drew his examples entirely from Fiji. He said that in Fiji a man would take a piece of young leaf shoot and chew it, muttering the while the name of the person he wished to injure. It is dangerous for anyone to come in contact with such a fragment of leaf after it has been spat out; and the basket in which the Tongan medicine to cause the hangatamaki is kept is likewise a source of peril. This man added the further information regarding the black art amongst his neighbors of the Fiji group that there one may cause foot trouble in an enemy by stabbing his foot-prints. A Fijian after drinking a coconut should

split it open before throwing it away. An unsplit nut which had been drunk would be a great find for the medicine man who could use it to work spells on the drinker; but by opening it up one allows the emanation from himself which entered at drinking to escape. One is inclined to suppose that amongst the Tongans the Fijians enjoyed a sinister reputation for preëminence in the black art.

Possession

An interesting comparison with Tongan belief is furnished by a letter from the Rev. S. W. Brooks to the *Methodist Magazine* (1867, Pt. I, p. 462) written from Bue, Fiji, in August, 1865:

> Among the company there was one Abraham, a strange-looking man, perhaps fifty years old. He was covered with remarkable excrescences, varying in size from a pea to a fowl's egg. On questioning the simple-minded chief as to the cause of this, and the age of the man, I made out these two remarkable things: 1. That the devil was the cause, and it was because his father had given his mother a hatchet before the child's birth; 2. That he was a thousand years old.

The devil gets rather more than his due among primitive men.

The belief in demonic possession still obtains more or less amongst the Tongans. A form of hysteria is in particular associated with a diabolic visit. There is a credit, however, to be entered against all that is charged against the mischievous pranks of these other-worldly visitors. A man, partly of Tongan and partly of Fijian blood, relates that in Fiji there are those who are possessed by various gods, and whose supernatural power thus acquired is used for benevolent ends. They form a detective corps d'élite, of infallible efficacy in the tracing of stolen goods. Nor is their medical practice less availing. The fact that they sometimes console the patient with the assurance that he will die should be reckoned an indication of honesty rather than a confession of impotency. Their practice is clairvoyant diagnosis rather than magical healing, as they give practical assistance to the sick, sometimes by prescriptions of their own and sometimes by recommendations as to where they may obtain treatment. The narrator added that these possessed men and women were amongst the most zealous Christians, and noted for the exemplary goodness of their lives.

Conclusion

However great a wanderer a man may have been during his lifetime it is amongst his own kin that he wishes to sleep his last sleep. The gods of a country not his own would resent his being laid in their soil and would attempt to drive him away. The unlucky exile, therefore, would appear to his relatives in dreams and upbraid them for their unkind behavior in leaving him to the fury of such persecutions, and would probably soon worry them into making the desired transference of his ashes. It can be very rarely, however, that the deceased is driven to these desperate measures, as the Tongan observes the most scrupulous care in the disposal of his dead. There is a curious story of one who left his body and visited Bulotu (Paradise, Hades, Abode of Hikuleo). He was absent some time, and on returning to the spot where he had left his body found that his friends, despairing of his ever again animating it, had buried it. Since then he has wandered a discarnate spirit, known as a god in Tonga, Fiji, and Samoa under the respective names of Fehuluni, Tuihaatala, and Moso; and with this disembodied vagrant we shall for the present leave the subject.

Some acknowledgments of indebtedness have been already made in the text, but in closing these notes I desire to acknowledge my special obligations to my friend and colleague the Rev. John Havea, Head Master of the Tubou College in Nukualofa, whose intelligent interest in all that concerns his race, and courteous patience in trying to make it intelligible to the foreigner, have equally made me his debtor.

Tubou College,
Nukualofa, Tonga.

A PRELIMINARY REPORT ON THE SO-CALLED "BANNERSTONES"

By JOHN LEONARD BAER

FOR the past half century American archaeologists have been amazed at the beauty and puzzled over the use of certain problematical forms left by primitive men about their camp sites and buried with their dead in eastern North America. From Ontario to Florida, from Maine to the Mississippi Valley, have been found hundreds of beautifully wrought and highly polished pierced objects of stone somewhat resembling the drilled stone axes of the Old World. Here, however, these artifacts are usually of too soft a material and of too delicate workmanship to be weapons, tools, or implements of practical use. The carefully selected material, the elegant and symmetrical shape, and the high polish of these relics have led many to believe that their use was of a ceremonial nature.

Many fanciful names such as bannerstones, ceremonial axes, maces, butterfly stones, thunder-bird emblems, totems, whale-tail emblems, baton or sceptre heads, equipoise stones, and mesh gauges, have been applied to these mysterious relics. The name bannerstone, applied by Dr. C. C. Abbott, is the one most generally accepted because of its priority and because of the fact that most of the stones seem to have been shaped and drilled for mounting upon handles so as to be carried during ceremonies as standards or banners.

In support of this name, is the discovery of a cache of three bannerstones all mounted upon engraved stone handles about a foot in length. They were plowed up in a field near Knap of Reeds, Granville Co., N. C., in the year 1908. One of them (fig. 74, a) has been on exhibition in the North Carolina historical collection at Raleigh, N. C., for a number of years and was discovered by Mr. W. E. Myer who kindly brought the knowledge to the writer's attention. He described this interesting find as follows:

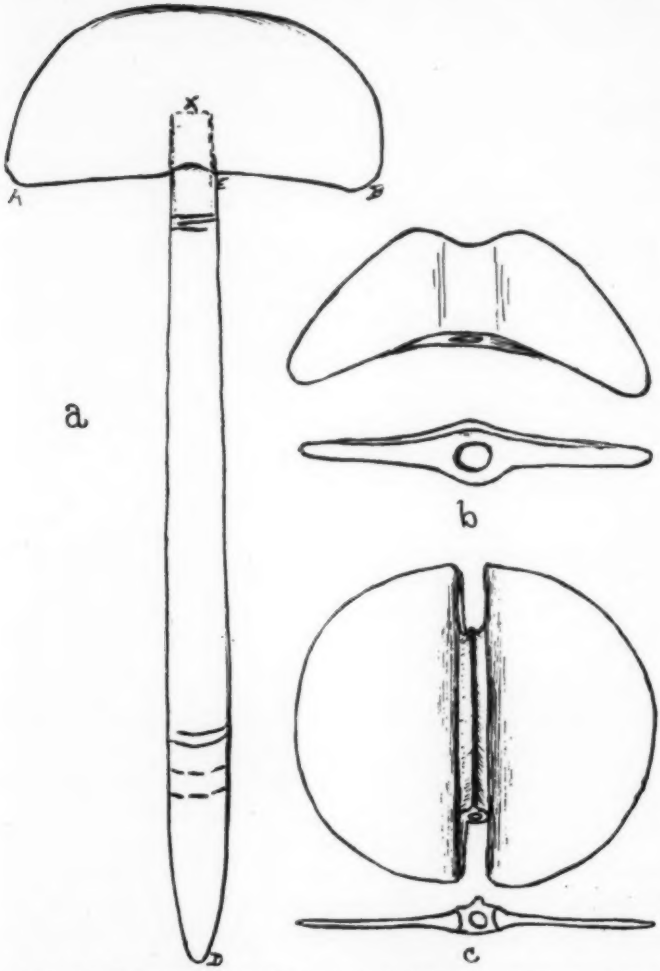


FIG. 74.—Bannerstones (one-half natural size) from: a, North Carolina; b, Pennsylvania; c, Florida.

There is one banner stone mounted on a stone staff . . . in the above collection. The material of both the banner stone and staff is a micaceous shale. The material is coarser in the banner stone than in staff. Staff about ⅞ inch in diameter at largest point, a to b about 4½ inches, e to d about 12 inches. The record attached to this banner stone is: "Three banner stones, all handles complete, plowed up in one spot, in a field on the farm of Mrs. Mary P. Waller, near Knap of Reeds, Granville Co., N. C. Not far away in [is ?] Indian burial mound. Lent by Mrs. Waller." The staff fits the hole in banner stone exactly. It extends to x in the hole. In fact, the staff and hole appear to have been made to fit perfectly by means of turning the staff in the hole and thus grinding to a more perfect fit. This grinding has some slightly modern appearance, as if people handling it had turned it somewhat in the hole. But the modern grinding is not sufficient to hide evidences of the old aboriginal grinding.

The above record has been substantiated in letters from Mrs. Mary P. Waller and Col. Fred A. Olds. Mrs. Waller states: "These banners were plowed up together. The handles were in two, but one handle was broken and apart from the head. One of the perfect stones and the broken one have been lost." Col. Olds adds to the above information, "the handle is well made and slightly ornamented with rings." The writer is indebted to him for a photograph of the specimen from which the illustration was drawn. This find strikes the writer as one of the most important bearing upon the use of the bannerstone.

While the material used for making bannerstones was usually slate, ribbon or colored slate preferred, many other materials were used such as shell, steatite, shale, serpentine, diabase. granite, quartzite, jasper, crystallized quartz, rose quartz, or any other stone which was capable of taking on a high polish and reflecting brilliant or pleasing colors. Mr. Clarence B. Moore has in his remarkable collection at the Academy of Natural Sciences, Philadelphia, a beautiful bipennate specimen made of shell (*Strombus gigas*) which was found in Volusia Co., Florida. In the same collection is a butterfly-shaped piece made of crystallized quartz, found near Red River. One wing has been broken off near the perforation and the fractured surface carefully polished, showing the esteem with which even broken bannerstones were regarded. A similar unfinished specimen of crystallized quartz from Louisiana is in the collection of the U. S. National

Museum. One wing of it was broken in the making and the hole therefore, was never drilled.

The aboriginal artisan showed great skill in selecting the stone best suited for his particular purpose. As stated above, a large percentage of bannerstones was made of slate, green or banded being preferred to the common gray variety. In choosing ribbon slate, the bannerstone maker showed excellent taste in securing, when possible, blocks in which the bands ran parallel with the cleavage. When these blocks were pecked into shape and polished, the ribbons crossing the gracefully curved wings at different angles made beautifully matched patterns. In addition to its pleasing effect, the ease with which it could be worked was undoubtedly a factor in the choice of slate. While water-worn pebbles were made use of when available, slate, serpentine, and diabase were to the writer's knowledge quarried particularly for the manufacture of bannerstones. Blocks of slate were split into the required shape for transportation to the camp site where they were fashioned with flint hammer stones, scrapers, drills, and polishing stones into beautiful works of art.

Bannerstones are usually of the most artistic form and finish, showing much labor and skill in their manufacture. No other artifacts of the aborigines of eastern North America are more elaborate or more beautiful. The most common form of these perforated, winged objects is that having long, thin, tapering, symmetrical wings, diverging from a mid-rib, through which a cylindrical hole has been drilled longitudinally. The measurements in centimeters of an average bipennate bannerstone are as follows: spread of wings, 14.5; thickness of wings, 1.2; width of wings, 5.15; length of centrum, 5.15; width of centrum, 2.2; diameter of bore, 1.55. Variations of this type are those in which the centrum is longer than the width of the wings, those in which the centrum is shorter than the width of the wings, those in which the wings are longer and narrower and curved, those in which the extremities of the long, curved wings are knobbed, those in which the wings are shorter and broader, those in which the wings are thicker and heavier, those in which the wings are oval, and those in which the outer extremities of the wings are parallel.

Certain names have been applied to these various forms such as bipennate forms, butterfly forms, lunate forms, knobbed forms, crescent forms, double crescentic forms, reel forms, oval forms, battle-axe forms, geniculate forms.

Lack of space and the expense of illustration forbid the use of many drawings to illustrate the various forms of bannerstones. One remarkable specimen from Florida recently acquired by the U. S. National Museum is especially deserving of notice and is illustrated in figure 74, c. It is nearly circular in shape and displays a higher degree of workmanship than any other specimen in the Museum collection. The length of the centrum is only about one-half the width of the wings and has a spine running the length of it on one side. The measurements of the stone in centimeters are as follows: spread of wings, 14.2; width of wings, 13; thickness of wings, .7 to .3; length of centrum, 6.8; thickness of centrum, 1.9; thickness of rear wall of centrum, .2; thickness of front wall of centrum, .4; thickness of spine of centrum, .2; diameter of bore, 1.1. This beautiful and fragile bannerstone could have survived no other than ornamental or ceremonial use.

Bannerstones are rare as compared with the hundreds of thousands of arrowheads, thousands of knives, axes, celts, and hundreds of pipes, yet they are much more abundant than our early archaeologists supposed. Specimens illustrated by the numerous writers upon the subject, some of which are herein figured, give an idea of the general distribution of the various forms unearthed in the eastern part of North America. Mr. Moorehead, in his *Stone Ornaments of the American Indian*, has collected a store of information in regard to the distribution of problematical forms. Many small collections have escaped notice, however, and we may expect many beautiful specimens yet to come to light. The writer recently visited a small town where he saw a number of fine bannerstones which have never been described or listed.

Many perfect bannerstones have been found in graves, but for every perfect one picked up about abandoned camp sites, a dozen broken ones have been found. Many of those broken in prehistoric times have been drilled at right angles to the original perforation as

if intended to be worn as pendants. Bannerstones were so cherished and considered of such importance that scarcely ever was a broken piece discarded by the fortunate possessor. Possibly they were carried in the medicine bag as "good medicine."

Judging from the bannerstones illustrated by the numerous writers upon the subject and from specimens exhibited in a number of museums and private collections, we observe that the bipennate form prevails throughout the northeast section of the bannerstone area; oval forms and reel forms throughout the southeast; reel forms, butterfly forms, crescent forms, double crescentic forms, and geniculate forms throughout the mound area; butterfly forms, knobbed crescentic forms, battle-axe forms, double crescentic forms, and geniculate forms in the northwest. Of course there is much overlapping of areas and unusual forms are occasionally found in almost every locality. Whether this is due to a system of trade among the Indians, or whether shapes were copied from those seen when on the trail or the warpath, is an interesting question.

The finding of characteristic forms in widely separated areas is also interesting and may assist in tracing prehistoric movements of the Indians. A remarkable instance of this kind is the finding in Florida of certain battle axe forms typical of Wisconsin.

Archaeologists have spent much time trying to figure out the method and sequence in the manufacture of bannerstones. Mr. C. C. Jones, Mr. David Boyle, Mr. Joseph D. McGuire, Mr. Charles E. Brown, and Mr. Warren K. Moorehead have all pointed out interesting stages in the manufacture of these mysterious artifacts. In speaking of an unfinished specimen, Mr. Boyle said, "Instructive as are all unfinished specimens, they are particularly so when they possess traces of the various steps taken to bring them into form." Even more instructive is a series of unfinished specimens from the same workshop, made of the same material, and possibly wrought by the same artisan. Such it has been the writer's good fortune to discover.

On Mt. Johnson Island in the Susquehanna River about a mile above Peach Bottom, Lancaster Co., Pa., over three hundred unfinished and broken bannerstones of slate have been found. These

rejects, in series, show all stages of development from the split blocks brought from the nearby quarry to the finished artifact. A number of such series have been made from the large quantity of pieces. The specimens herein illustrated have been accepted by the U. S. National Museum for display in the Pennsylvania collection. An interesting feature of the situation is that the ledge of slate whence the blocks must have come crosses the river only a few feet below the island. The fact that the exposed ledges on either side of the river are below the island convinces us that any blocks of slate found on the island must have been taken there for a purpose, and could not have been deposited by natural agencies.

Diligent search has been made about the outcroppings of slate in both Lancaster and York Counties for indications of primitive quarries. The lack of proof of work having been done at these more distant outcroppings leads one to assume that the bannerstone-maker secured his material from the nearby outcroppings in the hills on either side of the river, although all evidences have been obliterated by the white man in producing the famous Peach Bottom roofing slate.

One of Mr. Moorehead's party on the Susquehanna survey gathered information concerning this Indian workshop on Mt. Johnson Island from the writer, who also furnished him with a number of unfinished specimens. This account as published in *Ornaments of the American Indian* has been badly garbled. It reads thus: "Fishing Creek, *Columbia* Co., Pennsylvania,—On *Mountain* Island there seems to have been a long-settled Indian village in which quantities of relics have been obtained. The spot is most interesting because Indians seem to have gone to the mainland to the east of the island and there obtained slate which they brought back to the island and manufactured into ceremonial objects such as bannerstones and gorgets. The party found a large number of fragments ranging from plain slabs of slate to bannerstones in all stages of completion. Some examples of the unfinished objects, although broken, were found. It is a matter of common knowledge to the farmers in this neighborhood that these objects are abundant on Mountain Island." The island has from early historic times been known as *Mt. Johnson*

Island. Fishing Creek is about four miles up the river from Mt. Johnson Island, and, like the island, is in *Lancaster* Co., Pennsylvania, instead of Columbia Co., which is more than a hundred miles up the Susquehanna.

The following observations on the manufacture of bannerstones have been based upon specimens of slate from the workshop on Mt. Johnson Island. Similar specimens of serpentine and diabase from other sources are being reserved for further study to illustrate a future report upon the subject.

A large number of split slabs of slate an inch or more in thickness and similar to figure 75, a, have been found on the island. Some show slight evidences of the use of stone hammers in smoothing up the ends, but most of them are rough, parallelogram-shaped blocks of slate just as they were taken from the quarry. These slabs carried to the island by the Indians must not be confused with larger blocks of slate carried there to protect the shad fishing battery against the wearing away of the lower end of the island.

Figure 75, b, shows the plan and edge views of a roughly-shaped block from which about one-third has been broken. The block shows the use of the stone hammer in shaping the edges, but no work has been done on the sides.

Figure 75, c, shows the side and edge views of a roughly-shaped block from which about one-fourth has been broken. The edges have been shaped as in *b* with the stone hammer. The wings are a little better defined than in the preceding specimen. The section to be left the original thickness for the centrum is marked off with a stone knife or other sharp stone. Only a very small amount of pecking had been done before the end was broken off and the blank spoiled for making a symmetrical bannerstone. This specimen is very interesting in that it illustrates the three stages of manufacture on the one specimen. It also suggests a division of labor. May not the artisan have marked out the design for an assistant, who, by careless pecking, broke the specimen?

Figure 75, d, presents the side and edge views of a partly pecked bannerstone with one wing broken off. This specimen shows the result of pecking with an angular flint pecking-hammer such as those

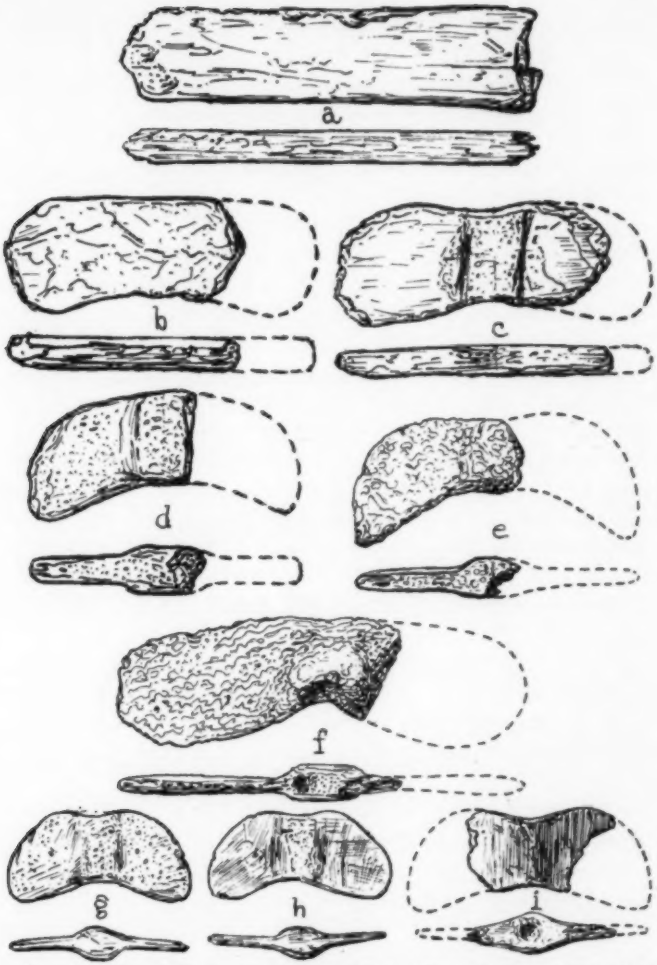


FIG. 75.—EVOLUTION OF THE BANNERSTONE. Plan and side views of the specimens of slate collected on Mt. Johnson Island, Pa., by Mr. John L. Baer, showing stages of manufacture from the rough blank to the finished artifact: a, the rough blank; b, roughly-shaped block; c, block marked for pecking; d, block partly pecked; e, block showing advanced pecking; f, block showing pecking nearly completed; g, block showing pecking completed; h, block showing effect of scraping; i, block showing scraping completed and hole started. Scale about one-fourth natural size.

illustrated in figure 76, e, e'. Quantities of these flint pecking-hammers are found on that part of the island where the unfinished bannerstones are most abundant. Occasionally a jasper or agate pecking-hammer is found.

Figure 75, e, presents the side and edge views of half of a bannerstone showing more advanced pecking. The edge view shows that the wings had been reduced nearly to their required thinness, while the centrum maintained its original thickness. The great number found broken at this stage show with what great care the artisan must have had to perform the pecking. Small indentations were made over the surface of the wings with the sharp projections on the pecking-hammer. Repetitions of this process gradually reduced the wings to the desired thinness. Had the blows been struck upon any surface except that parallel with the cleavage, the slate would have split.

Figure 75, f, presents the side and edge views of a much larger bannerstone, with long expanding wings and a very short centrum. Here the pecking was about completed when an accident broke off nearly half of one wing. This represents an unusually large size for this section of the country. In the U. S. National Museum collection are some very large unfinished specimens from South Carolina and Georgia. These, however, are not made of slate.

Figure 75, g, and figure 75, h, present another very interesting specimen since it shows the result of both pecking and scraping. Figure 75, g, shows the pecking marks on one side, and figure 75, h, shows the scratches on the reverse, evidently made by a flint scraper. While numerous flint scrapers have been found on the island, none were considered sufficiently close to the bannerstone rejects to be identified with the workshop.

Figure 75, i, presents side and edge views of the centrum and parts of gracefully sloping wings showing coarse and finer scrapings and the perforation just started. The finer scraping on one end may possibly be the beginning of the polishing. In a number of specimens the hole has been started before the scraping was finished as if to shape the centrum about the proposed perforation. No holes, however, have been drilled farther than just sufficient to locate them in any of the numerous specimens of slate examined.

Figure 76, a, presents side and edge views of a bannerstone with a part of one wing broken off showing gracefully sloping wings and a well-developed centrum in which the hole has been started with a hollow drill. In harder stone the core is frequently much longer. The same method of drilling was practiced by the aboriginal Europeans in making the perforations in their stone axes.

Figure 76, b, presents the side and edge views of the centrum and parts of the wings of a bannerstone about two-thirds drilled. A portion of one side of the centrum having been slabbed off reveals the core left by the hollow drill. Markings in the cylinder perforations in many specimens indicate the use of sand, and possibly water, in connection with the hollow drill. In all the specimens examined the holes have been drilled parallel with the split of the slate. This seems to be contrary to Mr. Warren K. Moorehead's findings. In his *Stone Ornaments of the American Indian,* on pages 110–111, he states:

> Fifth, he made his perforations at right angles to the grain or bands of the stone, which should be noted. The exceptions are rare. If he drilled with the grain, the stone would chip and before he finished the object it might break. Sixth, he drilled the specimen before it was completed, knowing that the drilling was a dangerous process at best, and if he did not prize the specimen very highly, he would not have cared when he drilled it.

It is true that drilling at right angles to the grain or bands of slate would have been easier, but that would have necessitated pecking against the cleavage of the slate. Anyone familiar with the methods used in working slate knows that it takes very little hammering against the cleavage to split the slate. The many bannerstones with beautifully matched patterns are a further proof that the holes were drilled with and not perpendicular to the split of the slate. Bands or ribbons do not always run parallel with the cleavage of slate. In this case there are beautiful markings but no matched designs.

Mr. Moorehead pictures a number of specimens showing the method of boring with a hollow drill. Mr. C. C. Jones, the earliest American writer upon the subject of "Perforated Axes," in his *Antiquities of the Southern Indians,* comments upon the drilling process as follows:

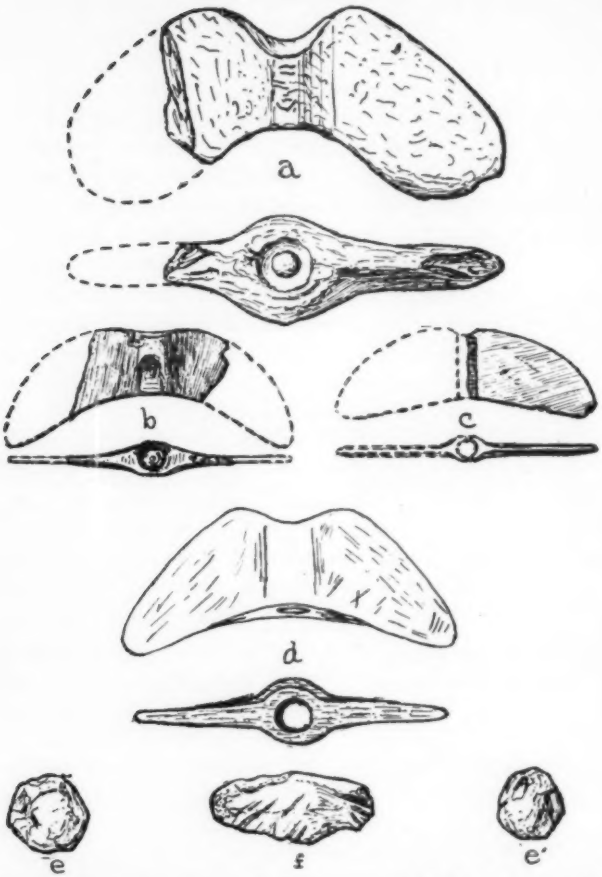


FIG. 76.—EVOLUTION OF THE BANNERSTONE (continued). a, plan and side views of specimen showing hollow drill core; b, plan and side views showing half-completed hole; c, plan and side views showing wing of polished bannerstone; d, plan and side views of finished bannerstone; e, e', flint pecking hammers; f, sandstone polishing implement. Scale about one-quarter natural size.

Of several specimens now on the desk, one is entirely finished and polished, but lacks the handle hole. A second, pecked into the desired shape, but not yet ground, indicates on the nether side the commencement of the drilling process. Upon careful examination of a third, it will be perceived that the drill-hole has been completed only one-half the required distance. A core or nipple, nearly a quarter of an inch in length, appears at the bottom, clearly showing that a hollow reed, aided by sharp sand and water, was the instrument by means of which the perforation was compassed.

Mr. Charles Rau says

It is very likely that the hollow drills of the aborigines of North America were pieces of that hard and tough cane (*Arundinaria macrosperma*, Michaux) which grows abundantly in the southern part of the United States, mostly along the banks of large rivers, and forms at present an article of trade, being used for pipe-stems and fishing rods. A piece of this cane, from which the knotty joints have been cut, forms a regular hollow cylinder sufficiently strong to serve as a drill. I learned from Dr. Davis that many years ago a stone pipe with an unfinished hollow, partly filled with vegetable matter, was sent to the late Samuel P. Morton of Philadelphia. When subjected to a microscopical examination the vegetable substance exhibited the fibrous structure of cane, and thus appeared to be a remnant of a drill broken off in the bore.

Figure 76, c, presents plan and edge views of half a polished bannerstone. This specimen is a fair sample of the many wings found about the workshop and elsewhere on the island. Many of them have doubtless been broken by the agency of frost after being plowed up and exposed near the surface, while some may have been broken even during the polishing process. In most cases the polishing seems to have been finished at least after the hole had been completed. A number of abrading stones have been found about the workshop. The one represented in figure 76, f, shows numerous grooves and angles and is of excellent grit.

Figure 76, d, shows a well made and beautifully polished specimen. While of the same general shape as most of the reject pieces found about the workshop, it is much smaller than the average. The smallest unfinished piece found here is exactly three inches in length and three-fourths of an inch in width.

In the study of these slate rejects, certain conclusions have been

reached. First, the slate was split into blocks of suitable dimension and not made into "turtle backs" for transportation. Second, the blocks were carefully marked out with the design of the pattern before the pecking process began. Third, the holes may have been drilled in some rare cases even before the pecking was finished, but the usual procedure was to indicate the hole so as to shape the centrum symmetrically about it and finish the scraping and grinding before drilling the hole to any considerable depth. Fourth, just as the early archaeologists were deceived about the rarity of bannerstones, so did they overestimate the time and patience necessary to fashion these beautiful artifacts. In support of this conclusion, Mr. Joseph D. McGuire has on exhibition in the National Museum a catlinite bannerstone made by himself, using the same primitive tools with which the prehistoric artifacts were made. The time required for making the specimen is itemized as follows: pecking, 3 hours; scraping, 1 hour; rubbing and polishing, 3 hours; drilling, 3½ hours. What were ten and a half hours to primitive man?

The mystery surrounding the origin, significance, and use of these so-called bannerstones makes their study all the more interesting. No record has appeared of early explorers having seen such objects among the Indians of post-Columbian times. No reference to prehistoric artifacts which can be identified as bannerstones has been discovered in Indian cosmology, mythology, or folklore. Thus a number of theories have arisen as to the possible use of these problematical forms. While a few still claim that they were specialized implements, most archaeologists agree that they must have been for ceremonial purposes. Many of the forms, and especially those made of fragile material such as steatite, slate, shell, etc., would not have served for any rough or even mechanical use. Neither would mere implements have been so symmetrically wrought or so highly polished. The specimen with a stone handle described at the beginning of this article shows no evidences of having been used as a weapon. Nor have the wings of this or any other bannerstone within the writer's knowledge been reduced to cutting edges. The polished handle with incised rings surely places this specimen in the ceremonial class. The fact that a bannerstone as crude as this one should have been

used for ceremonial purposes should bespeak a high and important place in religious festivals for the more beautiful and more delicately wrought specimens. Space does not permit entering into the numerous theories as to the origin and significance of the bannerstone. Until more material is available, more argument would be mere speculation, but whatever the various types of bannerstones may have symbolized, it is quite evident that they were to be mounted upon handles for ceremonial use.

DELTA, PA.

EGYPTIAN MEDICINE: A CRITICAL STUDY OF RECENT CLAIMS[1]

By T. WINGATE TODD

THERE is no people whose doings and whose thoughts are more fascinating to investigators of today than the ancient Egyptians, and modern writers, in their boundless enthusiasm, have ascribed to them thoughts and interpretations, even scientific practices, far beyond their deserts. The human race is not singularly inventive or piercingly discriminative by nature and the Egyptians in spite of their wonderful civilization were no exception to this rule. Before we accept the advanced views on hygiene and contagion, the skill in surgery and great development of medicine with which this people is credited, it is incumbent on us to examine the evidence with the greatest care.

In ancient times medicine was bound up with religion and magic. In one individual were frequently combined the functions of the priest, the physician, the magician, the interpreter of dreams, and even the kingship. Man's attitude toward disease only slowly changed from that which he adopted towards the other mysteries which surrounded him (2). For long ages disease and its cure were ascribed either to influences of a supernatural character calling for propitiation or to beings of a human or non-human kind who could be compelled or exorcised.

Only very gradually did materialistic conceptions supervene upon this early interpretation. With this subject Rivers has recently dealt very clearly (2) and has shown that when such materialistic views did make their appearance they were usually related either to animals or to an altered character of the blood. From the former arose the idea of the causation of disease and death by such creatures as worms and snakes (take for example

[1] Address delivered before the American Historical Association at a symposium upon the History of Science, Cleveland, December, 1919.

the setting up of the serpent standard by Moses) and from the other the now obsolete humoral pathology.

Egyptian history covers the period of transition from the earlier animistic to the later materialistic interpretation. It is therefore evident that this period in human thought was not conducive to any real progress in medicine such as many have claimed for this ancient people.

It is not proposed to review the entire period of Egyptian medicine or to deal exhaustively with the subject. Many excellent reviews such as Finlayson's (3) have already been published. The purpose of this paper is simply to call attention to certain facts which have recently come to light and to certain methods of attacking the subject recently called into action.

In the first place it is well to differentiate clearly between real Egyptian medicine and Egyptian medicine after it had become more or less permeated by Greek influence.

In Graeco-Roman times Egyptian physicians and Egyptian health resorts enjoyed great vogue. Early in the sixth century B.C. a party of Greek mercenaries with Psammetichus II carved their names on a statue in front of the rock temple at Abu-Simbel. Shortly after this there was founded at Naucratis a Greek factory. But Herodotus's description of his journey to Egypt about the middle of the fifth century B.C. when the country was under Persian rule, gives the first real account of Egypt by an outsider (1). From this time on Egypt was visited more or less regularly by the Greeks especially after Alexander's conquest and the establishment of the Ptolemaic dynasty. From the third century onward, Greek graffiti became plentiful. The first record of a Roman visitor occurs in a papyrus of 112 B.C. From then till the end of the second century A.D. Greek and Roman tourists abounded and the last recorded visit is that of Nikagoras in the Reign of Constantine (1).

During the Graeco-Roman period were produced such works as those of Herodotus, Diodorus Siculus, and Pliny and from these writings it has been customary to cull much of the history of Egyptian medicine, but uncritical writings must not be permitted to obscure the evidence yielded by Egyptian monuments and by the actual bodies of the Egyptians themselves.

To cover in chronological order the 4,000 years of the rise, zenith, and decadence of Egyptian civilization in their relation to Medicine seems a less suitable method of presentation than the discussion of historical evidence regarding modern subdivisions of the subject, and I propose therefore to adopt the latter method as briefer and more concise.

Specialization in Medicine

In Herodotus we find the following passage: "Each physician applies himself to one disease only, and no more. All places abound in physicians; some physicians are for the eyes, others for the head, others for the teeth, others for the parts about the belly, and others for internal disorders" (4).

Spiegelberg has recently brought this statement forward with two other references as evidence of the high level of specialization to which medicine was brought in Egyptian times (5). The other references are to Sethe and Wilcken. Spiegelberg points out that the title physician for the eyes not infrequently occurs in demotic documents of the Ptolemaic period. It is significant also that Wilcken's reference to a physician for the intestine occurs in a Greek document (Chrestom No. 136). It must be emphasized that during the later period of Egyptian history the Egyptians were probably much influenced by the Greeks and Romans and that true specialization in medicine was of Greek origin.

Diseases of the eye and intestinal disorders are, and apparently have always been, very common in the Orient. Hydrotherapy was a fetish to the Egyptians as is indicated by the frequent allusion to the cleansing powers of water in Egyptian and Hebrew literature and to the number of enemata, and douches which we know from the papyri to have been in use in Egypt. A physician whose function it was to cure by enemata was an exponent of a cult rather than a specialist as we understand the term today.

According to Sethe the most ancient reference to a physician for the eyes dates from the time of the Old Empire (ca. 2500 B.C.) but it does not appear convincing to me that this reference is actually to a specialist. There are constant references in Egyptian literature

to Amon as healer of the eyes. Gunn writing upon certain texts of the XIXth Dynasty (1350–1200 B.C.) points out that poetic figures are common in odes and inscriptions to the gods and that two expressions were used for blindness by the workmen of the XIXth Dynasty, namely "to see darkness by day" and "to see a darkness of thy making." "If this means *physical*[1] blindness," says Gunn, "it is very strange that this affliction should occur proportionately so often and at the same time be the only one specified by the victims of divine retribution" (6). It is inadvisable to read too much into this one solitary reference of Sethe's and one should not infer from it specialization in eye diseases any more than one should build up theories of specialization in diseases of the nose from the recorded fact that Sekhet-enankh healed the nostrils of Pharaoh Sahura of the Vth Dynasty. Nor can the claim for specialization be substantiated by collections of prescriptions such as occur in the Ebers and Hearst papyri: this arrangement would be a natural grouping. The occasional reference to special physicians or temples in the Ebers papyrus can not be held to indicate specialization. Hence the enthusiastic statement of Von Klein (7) that "the subdivision of the medical profession . . . must have had a tendency, in some respects, to advance medical knowledge by specializing it" can not be accepted.

Greek Medicine in Egypt

A study of the Oxyrhynchus papyri shows that the formality of Egyptian medicine lost nothing from the introduction of Greek and later of Roman law. Papyri LI and LII, for example, show rigid compliance with formality combined with an entire lack of attention to medical questions (8). This is not the place, however, to discuss the inter-relations of Greek and Egyptian medicine.

Therapeusis

The elaborate therapeusis of the Egyptians dwindles upon critical examination to collections of incantations and weird random mixtures of refuse with roots and other substances some of which latter were indeed utilized with increasing discrimination by the

[1] The italics are mine.—T. W. T.

Greeks and are still to be found in modern pharmacopoeias. Such collections are found in the Ebers and Hearst papyri (9, 10). Both these papyri were compiled from scattered local data between the XIIth and XVIIIth Dynasties (2000–1500 B.C.) by itinerant priest-physicians, and all other extant medical papyri date from this heyday of Egyptian medicine. In interpreting these prescriptions it must be recalled that this was still the age when men believed disease to be sent by the gods, who might be propitiated, or brought by demons, who could be exorcised. The materialistic viewpoint has scarcely as yet attained any foothold. Hence it was the prayer or the incantation which was the important feature of the cure; the prescription was only accessory. The sources common to both these records were collections, largely traditional, gathered by physicians in different towns or attached to different temples. There is nothing to indicate a canonical or sacred character in either although as Reisner points out (10) it was upon some such collection that Clement of Alexandria about 200 A.D. based his unwarranted statement regarding the hermetic books of Thoth.

Obstetrics

Obstetrics was not one of the duties of the physician; it was relegated to midwives. Apparently the obstetric stool of the last century has survived with very little modification from early days (9, Plate XXXVII, fig. 1). It is of peculiar interest to note the crystallization and survival of ancient Egyptian birth practices among modern African tribes. The researches of Blackman (11, 12) and Seligmann and Murray (13) upon this subject have not only shown the antiquity and probable origin of these practices among Negroes of today but also have thrown much light upon the interpretation of Egyptian inscriptions and graphic representations, a method of attack which is of particular significance in the interpretation of figures hitherto identified with surgery.

Surgery

Regarding surgical practices we know that previous to the XVIIIth Dynasty (ca. 1500 B.C.) it was common to incise abscesses

and remove fatty tumors, for specific reference is made to these operations in the Ebers papyrus.

Rude splints were certainly employed at the time of the Vth Dynasty (ca. 2600 B.C.). From mummies of this period Elliot Smith has described cases of compound fracture of the femur and forearm treated in this manner and points out that splints were employed to support the injured limb but without any idea of controlling the fragments (14).

The alleged amputation of limbs depends upon a statement of Larrey, which, as Finlayson points out, is probably a misunderstanding (3). Sacrificial amputation of the foreleg of a living bull calf (15) is the only amputation for which there is evidence in Egypt.

Ritualistic Practices

It is altogether an error to classify such rites as circumcision under the heading of surgery. One fallacy of modern writers is to take it for granted, seemingly, that the ancients thought in our terms. Probably nothing was further from the mind of the artist who depicted circumcision upon the wall of the tomb of the VIth Dynasty official at Sakkara (ca. 2500 B.C.) than the idea that he was figuring a surgical operation. Yet, thinking in modern terms, the association of surgery of the extremities with circumcision has been inferred by Müller (16) and it is therefore necessary to review the evidence offered by the drawings themselves.

In the left picture the operator is using a flint of primitive type and the tall youth who is undergoing the rite has his upwardly directed arms held by a man who stands behind. In the right picture a more elaborate instrument is being used and the youth has no supporter. It is altogether inconceivable that the artist has given us two representations of alternate methods. Nor is there any intrinsic evidence in favor of Walsh's supposition that the operator to the left is engaged in breaking a chordee (17). As in the case of birth rituals, modern Negro practices are of great assistance in interpreting these scenes.

Among the native tribes of East Africa the circumcision ceremony varies considerably in detail and also in the age of the initiates.

Whereas in some tribes boys undergo the rite at 10 or 11, in others the age is as high as 18. Among the most instructive records are those dealing with the ritual among the tribes of Kenya Province, British East Africa (18, 19).

In Chuka the circumcision consists of two operations. At the first the lad squats but holds his arms in the position represented on the tomb at Sakkara and as in that picture also he is supported by a "godfather." The operator cuts off only the extremity of the foreskin. After ten minutes or so the operator again appears and trims off all the remaining foreskin. At this second operation the "godfather" is not present but a warrior sits on each side of the boy, to assist him, support his penis, and check the bleeding. It is impossible to fail to associate these two stages of the Chuka circumcision with the two pictures redrawn by Müller (13, plate 106) in the first of which the "godfather" supports the lad while the operator uses a flint knife and in the second of which the lad is unaccompanied by a godfather and the operator is using a less primitive instrument. The inscriptions relating to these pictures seem to be portions of the ritual and ought not to be interpreted as evidencing either pain or jocularity.

Among the Amwimbe on the other hand the entire ritual is performed at one operation but the technique differs from that in vogue among the Chuka. After the operator has cut off the extreme end of the foreskin he makes a transverse slit across the dorsum and pushes the glans through it so that a ragged pucker of skin is left below. The second detail resembles the operation among the more northerly Meru and at once recalls the end result obtained as far back as late predynastic Egyptian times and represented on the great slate palette of King Narmer. Circumcision is certainly an initiation rite of great antiquity (20).

If the explanation here put forward be the correct interpretation of the two pictures of circumcision may we not go further and eliminate any idea of surgery from the remaining representations, considering them to be parts of the ritualistic ceremonial of circumcision. With this interpretation the inscriptions will perfectly well agree. The attitude of the lad on the extreme right of the

lower figure in plate 105 is not necessarily indicative of pain but is at least comparable with that of the lad awaiting the second circumcision operation in Chuka (18, fig. 3). The figures said to represent surgery of the hand and foot and the opening of boils on the neck and knee appear to me undoubtedly ceremonial. Apart from the improbability of the artist delineating surgery in connection with circumcision and apart from the technical difficulties in interpreting the pictures from a surgical standpoint, there is other evidence against the current view. If the artist had intended to represent a cutting operation in any of these he could clearly have done it as is shown in the circumcision pictures, all the drawings being obviously by the same hand. Again in the Mosaic law part of the ritual of the cleansing ceremony was the anointing of the right ear, the thumb, and great toe (21). That the Mosaic law was an adaptation of Egyptian custom of about 1230 B.C. there is no question and I submit that in spite of the fact that in the Sakkara drawings it is the left thumb and great toe which are pictured the ritual is probably the same.

Dental Surgery

It has frequently been asserted that the Egyptians were skilled in dental surgery. This statement seems to be based in the first place upon the writings of Herodotus (4) and confirmed by the slender evidence of the use of mouth washes (e.g. 9). Again the finding in the mouth of pieces of gilt from facial adornments of the dead has encouraged belief in this theory (22). But Wood Jones has clearly stated that at no period of Egyptian history do the teeth of any body show evidence of the dentist's handiwork (22) and his assertion is amply borne out by most investigators who have experience of Egyptian skeletons. This does not mean that no dentistry was needed among this ancient people, for Egyptian skeletons of all periods and of every social rank show caries, abscesses, and evidence of pyorrhea (24).

Hooton has recently claimed "the existence of a rudimentary knowledge of oral surgery in the Old Empire" (ca. 2500 B.C.) (23), basing his claim upon a single mandible which presents two foramina

above and behind the mental foramen on the right side. One of these foramina lies between the roots of the second premolar and the first molar and the other between the roots of the first molar. Circumstantial evidence is against the drilling of holes in the jaw to evacuate pus from a root abscess among a people who so far as we know did not even extract teeth, let alone perform operations calling for considerable knowledge and skill which such a procedure would imply. And far more convincing than circumstantial evidence is the evidence provided by the mandible itself. For the anterior of the two holes is plainly an accessory mental foramen—much larger than usual it is true and accidentally associated with the extreme anterior limit of the abscess cavity—such as is by no means infrequent in human and especially African mandibles. Further, the posterior foramen bears all the ear marks of a pathological opening through which the abscess has evacuated itself, the pus having caused erosion of the surface of the mandible around its outlet. In the face of these facts, therefore, it is apparent that the evidence in no way justifies us in doubting the truth of Wood Jones's assertion.

The only evidence for artificial teeth is a single case in which a number of teeth bound together with gold wire were found in a *Roman* tomb in Egypt (24). Ruffer asserts that this apparatus was merely for show and not for use since it could not possibly have been employed for mastication.

Anatomy

As regards anatomy the evidence of the papyri shows that the Egyptians knew of the locations of certain organs but had no understanding of their function. Their ritual obsessed them even in this. The bodily proportions were confined within the rigid canons of their pictorial art (25). We are no more justified in believing that on account of their elaborate scheme of mummification the ancient Egyptians knew any anatomy than we are justified in taking for granted, from their devotion to cleanliness and all forms of "hydrotherapy"—washings, enemata, douches, and the like—that they had any conception of contagion or of the real cause of disease. Alan Gardiner states the Egyptian attitude excellently

when he says "the Egyptians were the greatest formalists the world has ever known; their literature, their art, nay even their history seems to crystallize in given types from which individual variations were few." And this intense formalism was just as true of their medicine as of the other phases of their life.

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THE LINGUISTIC AND ETHNOLOGICAL POSITION OF THE NAMBICUÁRA INDIANS

By RUDOLPH SCHULLER

THE earliest references to the Nambicuára or Nimbiquára Indians known to me are contained in Father João Phelippe Bettendorf's *Chronica da Missão dos Padres da Companhia de Jesus no Estado do Maranhão*,[1] a long account of the settlements of the Portuguese Jesuits among the native Indians of the great Amazonas basin, written about 1698 in the city of Para by the Jesuit father whom I have just mentioned.

"Nambicuára" are referred to as inhabiting the "Sertão" of the Upper Tapajós, a southern tributary of the Amazonas.

The term "Sertão,"[2] as employed by Father Bettendorf, evidently refers to the region situated between the Tapajós and the river Xingú, a territory unknown at that time to the Jesuit missionaries. Nevertheless, the geographical position of the habitat of these Nambicuáras is in perfect accord with that of other Nambicuára Indians mentioned two hundred years later by several travelers.[3]

In nearly all maps drawn by Jesuit missionaries in Paraguay during the seventeenth and eighteenth centuries approximately the same region is given as occupied by Nambicuára Indians.[4]

[1] *Revista Trimensal do Instituto Historica e Geographico Brazileiro*, tomo LXXII, parte 1ª, Rio de Janeiro, 1910.

The former state of Maranhão embraced the present states of Maranhão, Pará, and Amazonas. Therefore, in earlier chronicles and maps, we read: "Brazil e o Estado do Maranhão"; cf., for instance, all maps drawn by the brothers João e Pedro Teixeira. The latter is not to be confounded with the traveler of the same name, who visited Persia.

[2] Undoubtedly from "deserto," desert.

[3] W. Chandless, Notes on the Rivers Arinos, Juruena, and Tapajós, in the *Geographical Journal*, vol. XXXII, London, 1862, p. 268 seq. Karl v. d. Steinen, *Durch Zentral-Brasilien*, Leipzig, 1886.

[4] "Nambiquas" on the "Second map of Paraguay constructed by the Jesuits of that Province in 1722, presented to the R. P. Michelangelo Tamburini," etc., published

"Nambicua[ra]," as living in the neighborhood of the Xaráye-Aruák Indians, are quoted in the *Relacion Historial de las missiones de los Indios que llaman Chiquitos*[1] by Father Juan Patricio.[2]

Nambicuára, Indians occupying the same region, were discovered a few years ago by Colonel Rondon[3] of the Brazilian army, who, owing to the support of his Paresi-Indian friends, had the good fortune to establish friendly relations with these warlike and wild Indians.

According to Rondon's personal narrative these Nambicuára were entirely unknown to the white settlers of Matto-Grosso.[4] The first scientific news of Rondon's discovery were communicated by Dr. E. Roquette Pinto, Assistant Curator of Anthropology of the Museu Nacional at Rio de Janeiro, in a pamphlet,[5] written in Portuguese and in German, presented to the Eighteenth International Congress of Americanists held in 1912 in London.

Roquette Pinto gives a somewhat detailed description of the physical *habitus* of the Nambicuára, of their manners and customs, weapons, home industry, etc., and two short vocabularies of their native language, taken by different persons at two different places in northeastern Matto-Grosso.

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by the late Baron de Rio Branco in *Exposição que os Estados Unidos do Brazil apresentam ao Presidente dos Estados Unidos da America como arbitro*, vol. VI, appendice, mappas; New York, 1894, no. 2A. Cf. Martin de Moussy, *Atlas*, and Schuller's edition of Azara's *Geografia Fisica y Espérica de las Provincias del Paraguay*, etc., Montevideo, 1904.

Further, see: the German edition of the same map, of about 1730; *Third map of Paraguay constructed by the Jesuits*, etc., 1732; Bellin's map in vol. II of the *History of Paraguay*, etc., by Rev. Father Pierre François de Charlevoix, S. J., 1749; and the map of Dr. Juan de la Cruz Cano y Olmedilla, 1775.

[1] The Chiquitos, Jamuco and Chamacoco (of Boggiani and Frič) form a linguistic family distinct from that of the Chaco-Guaycurú, which is composed of the Toba, Mocoví, Abipon, Payaguá, Mbayá, and others.

[2] Madrid, 1726.

[3] A Boróro descendant. The linguistic position of the Boróro Indians of Matto-Grosso is still an open question. Their physical characteristics, manners and customs, etc., however, are akin to the Guaycurú type.

[4] A series of articles on the same subject published in leading newspapers of Rio Janeiro.

[5] "Die Indianer Nhambiquára aus Zentral-Brasilien," etc., in *Brasilianische Rundschau*, Rio de Janeiro, s. d. (1912), illustr. (It would perhaps be more correct to say "of Western Brazil.")

The name Nambicuára or Nhambiquára, the origin and meaning of which is not explained by either Rondon or Roquette Pinto,[1] has nothing to do, of course, with the linguistic position of these Indians.

Nambicuára is a Guarani word and means "long-eared," from *nambí* "ear," and *quára* or *cuára* "hole." Father Antonio Ruiz de Montoya[2] gives: "*amô-nambiquâ*, *nãmbiqua-mõñâ*, 'perforating-the lobe of the ear'; *nambi-yooá*, 'who has hanging down the ears' (owing to the weight of the wooden or metal ornaments introduced in the perforations of the lobes); *nambiquára*, 'the perforation of the lobe.'"

Thus Nambicuára is a synonym of the nickname "Orejones," "Orelhudos" (long-eared), applied by the Spanish and Portuguese settlers indiscriminately to all Indians who had the custom of wearing large ornaments in the lobes of the ears. "Orejones" or "Long-eared" were even the Inca of Cuzco in Peru. The Orejones near San Francisco de Bejar in northern Mexico are well known to all students acquainted with Mexican ethnography.[3] One of the several tribes called Orejones is thought by Professor E. Poeppig[4] to belong to the Ticuna of the upper Amazon. A short vocabulary of an "Orejones" language was collected by Count Francis de Castelnau[5] on the upper Amazon. It is undoubtedly closely related to the Huitoto[6] idiom spoken by several tribes of the Putumayo River.

[1] Roquette Pinto's note, "it is a name of Tupi-guarani origin," in his last article, "Indianer des Nordgebirges," in *Brasilianische Rundschau*, Rio de Janeiro, s. d. (1914), p. 349, is evidently based on my own researches; cf. "Die Bedeutung der Bezeichnung Njambiquára für südamerikanische Indianer," in *Petermanns's Mitteilungen*, 58 Jahrg., Gotha, 1912, II, halbband, p. 207.

In the interior of the state of Maranhão in Brazil one who has but one ear is called even now *nambí;* cf. Theodoro Sampaio, *O Tupi na Geographia Nacional*, 2d edit. 1914; São Paulo, p. 22.

[2] *Tesoro de la Lengva Gvarani*, etc., Madrid, 1639, p. 232.

[3] Cf. the Orejon language of the River San Antonio, in Texas; *Manual* of Father Bartolomé Garcia, Mexico, 1760.

[4] *Reise in Chile und Peru*, bd. II, p. 415.

[5] *Histoire du Voyage*, tome V, Paris, 1854, p. 294; Martius, *Glossaria*, pp. 297–298; cf. also Dr. Theodor Koch-Grünberg, "Les Indiens Ouitotos," in *Journal de la Société des Américanistes de Paris*, nouv. série, tome III, Paris, 1906.

[6] The account of the late French traveler Rabouchon has been published by order of the Peruvian Government. See also: "A British-owned Congo," in *Truth*, no. 1,708;

One branch of the Huitoto Indians is named Kaimö by Koch-Grünberg. "Kayme" Indians, in the neighborhood of the Nambicuára, appear also in the map of Paraguay constructed by the Jesuits in 1722, which was mentioned before.

Nambicuára is evidently a collective name, and, therefore, without any value for the linguistic and ethnologic position of the Indians so termed. From the vocabularies which have been published by Roquette Pinto, and from unpublished linguistic material which I have had an opportunity to examine in the National Museum at Rio de Janeiro, I can state that these Indians belong to the great linguistic family called Caribe-aruác.

Dr. Seler,[1] however, asserts that they are a branch of the "Ta-

London, Sept. 22, 1909, and cf. n. 1,709, 1,710, and 1,711; *Truth*, Oct. 13 and 27, 1909; Nov. 3 and 10, Jan. 5 and 12, 1910; Feb. 2, April 27, June 1, 15 and 22, July 20, June 7, 1911; July 6 and 20, Oct. 4, April 3 and 17, 1912. Further: "The Indians of the Putumayo, upper Amazon," in *Man*, London, Sept., 1910; Hardenburg's account of his voyage through the wilderness of southern Colombia, London, Fisher & Unwin; *El libro rojo del Putumayo*, etc., Bogotá, 1913, (also translated into English); *Report and Special Report from the committee on Putumayo*, etc. (Blue-Book), London, 1913; *Misiones Católicas del Putumayo, Documentos*, Edición Oficial, Bogotá, 1913.

Count de la Viñaza, *Bibliografía Española de Lenguas Indígenas de América*, Madrid, 1892, no. 1,016, p. 281–II, quotes a "Vocabulario de la lengua de los Indios que pueblan (the original has "poblan"—sic!) los rios de Potumayo y Caqueta, hecho á solicitud del colegio de misiones de San Diego de Quito," a Ms. in small 4to, XII, ffnc., in the library of the Royal Academy of History at Madrid. This vocabulary, of about 2000 words, was collected by one of the Franciscan missionaries "Anno domini 1751," the date being omitted by La Viñaza, and has been published already (*badly*) by Mr. Márcos Jiménez de la Espada, in the *Revista de Archivos, Bibliotecas y Museos*, (Tercera época), tomo II, Madrid, 1898, pp. 200–216; 258–263; 427–432; 527–529; 575–577; and tomo III, 1899, pp. 187–191; 358–362; and 518–524. Cf. also Manuel Serrano y Sánz, "Nota al Vocabulario de los Indios del Putumayo y Caquetá," ibid., tomo III, 1899, pp. 601–603.

To the same linguistic family belong also the languages the grammatical structure of which is discussed by an anonymous author in a manuscript, yet unpublished, with the date "Mayo 4 de 1793," preserved in the Lenox Library at New York. The title of the codex is as follows: "Arte de lengua de las Missiones del Rio Napo de la Nacion Quenquehoyos, y idioma general de los mas de ese Rio, Payahuates, Genzehuates, Ancuteres, Encabellados. Juntamente tiene la doctrina Christiana en dicha lengua y en la del Ynga [Quechua]. Al remate." In 12vo., LXXV leaves, clearly written. An extract from this Ms. was published by Dr. Daniel Garrison Brinton, in "Further Notes on the Betoya Dialects; from Unpublished Sources," in *Proceedings of the American Philosophical Society*, vol. XXX, December, 1892, no. 139, pp. 271–278.

[1] Reference concerning in the Proceedings of the Eighteenth Internat. Cong. of Americanists; in *Zeitschrift für Ethnologie*, Berlin, 1912.

púya-Stämme," because they have no hammocks, and "when night came simply lay down in the sand."[1]

The proof of my conjecture may be given in several ways. In the first place, the Paresí, Indians of genuine Caribe-aruác origin, call the Nambicuára Uaikokoré and Ouihanîêre, names probably referring to the congenial relations existing between both tribes. The correctness of this assumption seems to be assured by the following comparison:

UAI-KO-KORÊ:

kori, elder sister. Paresí.
wari-korẽ (female) } son, child. Karayá.[2]
wari-orẽ (male) }
kxoru, elder sister. Bakairí.
irt-šõri, brother-cousin. Yaulapiti.
tšo-ñõr(i), grandmother (father's mother). Amuéša.[3]

The Pana-jori and Igi-ñori were sub-tribes of the Gaye "whose language is very similar to that spoken by Iquito."[4] There is no doubt that the Gaye and Iquito were of Caribe-aruác origin.

OUI-HA-NIERE:

apor-hany, boy. Catoquina.
anere, son. Palmella.
p-anere, husband. Piro.
i-neri, man. Piro.
y-ñerre,[5] grandfather. Mayna.

Tribes of the same linguistic family often call one another "elder sisters," "younger brothers," "younger boys," "grandfathers," "old women," "aunts," etc., etc., Sipobo, for instance, meaning "elder sisters" of the Pano-aruác branch in eastern Peru; Tamóyo "grandfathers" of the coast Tupí in eastern Brazil, etc.

[1] Th. Roosevelt, "A Hunter-Naturalist in the Brazilian Wilderness," in *Scribner's Magazine*, the sixth article, New York, Sept., 1914, p. 300.

[2] The Karayá, Iavaše, Trumaí, Curuahé, and Chipáya are Caribe-aruác, although some authors think otherwise.

[3] See my article, "Yñerre," etc., in *Annaes da Bibliotheca Nacional do Rio de Janeiro*, vol. XXX, Rio de Janeiro, 1912 (Extr. p. 38).

[4] Father José Chantre y Herrera, *Historia de las Misiones de la Compañía de Jesús en el Marañón Español* (1637–1767), Madrid, 1901, p. 405.

[5] The Tuyu-ñeri of eastern Bolivia are Pano-aruác; cf. Erland Nordenskiöld, "Beiträge zur Kenntnis einiger Stämme des Rio Madre de Dios-Gebietes," in *Ymer*, heft 3, Stockholm, 1905.

"Brother" and "cousin" are synonyms in all Caribe-aruác languages, but are only used when affinity exists. Therefore, it seems to me that those two names applied by the Paresí to their Nambicuára neighbors must have some analogous meaning.

On the other hand, the cultural conditions of the Nambicuára speak undoubtedly against their ethnological relation with the Crên-Crân of central and eastern Brazil. Roquette Pinto and Dr. Seler seem to have forgotten that to the Crên-Crân family belong only tribes of the lowest cultural conditions, such as the Botocudos, Cayapó, Camécrân, people still representing conditions of early prehistoric South America. They are generally tall and large bodied men, without well-developed industries, without agriculture, pottery, and boats; they are not swimmers, and in order to pass a river they have to seek its headwaters. The art of weaving is unknown to them. Their huts are very primitive. Some have no permanent dwellings at all and are nomads, sleeping wherever night overtakes them. They have no hammocks and sleep on the ground covered with leaves.[1]

Finally, and this is undoubtedly the most important point, the phonology of their language is characterized by *accumulation of sounds entirely heterogeneous*, such as are unknown in the Nambicuára language, as well as in all other Caribe-aruác dialects.

The Nambicuára *ethnographica* preserved in the National Museum at Rio de Janeiro, which I have seen in the Rondon-Roquette Pinto collection, are, unquestionably, the products of a higher civilization that that of the Crên-Crân tribes.

Here I must call attention to the "malaca" or beehive huts of

[1] Following (1) Guido Marlière's account in the *Abelha de Itacolumi*, a weekly paper published in Ouro Preto, Minas Geraes (Brazil), 1824–1825; (2) Dr. W. Kissenberth's personal communications. The example of the Kaingangue alleged by Mr. V. A. Frič can not be accepted because these Indians were influenced by their Guaraní neighbors, while their "brothers" in the state of Rio Grande do Sul (near Nonohay) and in Paraná have no boats and do not swim. The same may be asserted of the so-called Bugres in the state of Santa Catharina, who are still living in the virgin forests between Lages and the German colony of Blumenau, and are termed Xocrên and Docrîn. Mr. Frederick Mayutzhusen thinks the Guayakí of eastern Paraguay were remains of the Old Guaraní; but this statement is not yet verified. The artistic development of some weapons of the Cayapó Indians, Araguaya River in Goyáz, Brazil, is surely due to the influence of the higher culture of their Caribe-aruác neighbors.

circular form of the Nambicuára.[1] They are identical with those of the Curuahé and Chipaya, visited a few months ago by Dr. E. Suethlage.[2] And huts of a similar form are also in use among the Arecuna of the Rio Branco in Brazilian Guiana.[3]

After all, we may say that the physical *habitus* of the Nambicuára, their manners and customs,[4] their material "Kulturbesitz," and *especially their language*, place them near the Caribe-aruác family.

MEXICO CITY,
MEXICO.

[1] Roosevelt, loc. cit., p. 300.

[2] Personal communications.

[3] See Dr. E. Uhle's communication on his voyage up the Rio Branco; in *Zeitschrift für Ethnologie*, Berlin, 1913.

[4] I was told by one of Rondon's officers that the Nambicuára were clever swimmers, and that presumably they have "canoas" (boats). Those Nambicuára which Roquette Pinto saw "simply lying down in the soil," were paying a visit to Colonel Rondon and, of course, did not carry with them their hamacas.

BOOK REVIEWS

METHODS AND PRINCIPLES

Zusammenhänge und Konvergenz. FELIX VON LUSCHAN. (Reprint from *Mitteilungen der Anthropologischen Gesellschaft in Wien,* vol. 48.) Vienna: 1918, 117 pp.

The contrasting principles of diffusion and convergence have rarely been so critically balanced and concretely illustrated as in this essay. Von Luschan makes propaganda for neither. He adduces parallels in order to dissect and estimate them. Time and again he comes to the conclusion that in such a feature diffusion is suggested, but remains to be proved, in another convergence is possible. His interest is almost limitless, his knowledge that of the many-sided scholar, his point of view thoroughly historical, his touch sure, swift, and spontaneous. He does not philosophize, but discusses facts. Civilized and primitive cultures are handled on a par. The first twenty pages introduce the problem. The remainder of the paper consists of a consideration of a list of culture elements, alphabetically ordered. Among these are cat's cradles, alphabets, bronze, thunderstones, double eagles, iron work, fans, flood myths, swastika, suspension bridges, initiation ceremonies, pottery, Kwan-yin, solder, mankala, masks, tooth brushes, nephrite, pile dwellings, plow, bark cloth, skull cults, navigation, coiled basketry, proverbs, stilts, constellations, zodiac, totemism, trephining, loom, dice, spear-throwers, queues, composite bows.

"Geniality," in the senses which it has both in English and in the author's mother tongue, best describes the quality of this essay.

A. L. KROEBER

A History of the Art of Writing. WILLIAM A. MASON. New York: Macmillan, 1920, 502 pp.

This book is useful and very pleasant reading. Aim and treatment are much like those of Clodd's *Story of the Alphabet,* but the present work is two or three times as long, has a hundred more illustrations, and the quality of these is of the highest. They are chosen aptly, also with aesthetic feeling. The treatment is generally untechnical, but never to

the point of unscholarliness. The specialist in the history of any system of writing will derive little from the book, yet as a work of general reference it forms a valuable addition to any library. Doubtful points are never forced into a theory; there is no dogmatizing; clearness, balance, and interest pervade the treatment. The work seems thoroughly accurate.

One third of the volume is devoted to picture writing, a third to ideographic and mixed systems, a third to the alphabets, much as in Clodd's booklet. The post-Phoenician alphabets of Asia receive bare mention. A modern book of the scope and quality of Isaac Taylor's still remains a need.

A. L. KROEBER

NORTH AMERICA

Zuñi Breadstuff. FRANK HAMILTON CUSHING. (Indian Notes and Monographs, vol. 8.) New York: Museum of the American Indian, Heye Foundation, 1920, 673 pp.

This republication of the greatest of Cushing's works makes available the series issued in *The Millstone* in 1884–85, and heretofore accessible only in three or four complete copies. Genius and phantast, child and amazing observer, Cushing was at his best when he could subdue his imagination to his eyes and ears; and that he has done here. The book fairly reeks of Zuñi. Take the little conversation on the first page, rendered thus:

> Meal, soft corn-flour, and good water equally I mix; then stirring, red-pepper, salt, and suet I put in, into husks I roll this, into an oven all-place shutting the hole; time passed, I take them out. Now then, for eating they are ready.

This is absolutely literal; and the Zuñi text is beyond cavil.

Formal organization of treatment is as wanting as one expects from Cushing; but there is full compensation in the vividness of the narrations, the pregnant anecdotes, the interspersed myths, rituals, and pictures of social life. Possibly there holds of this volume, too, what vitiates so much of Cushing's work as science: that one must himself know the people to distinguish what is Zuñi and what is Cushing. But to the reviewer at least there seems to be no piece of writing that renders so complete and true and powerful an impression of Zuñi as *Breadstuff*.

A. L. KROEBER

AFRICA

Das Alte Ägypten. (*Kulturgeschichtliche Bibliothek,* Herausgegeben von W. Foy. 1. *Reihe: Ethnologische Bibliothek.* Mit Einschluss der Altorientalischen Kulturgeschichte.) A. WIEDERMANN.

In this book the well-known Bonn Egyptologist, Prof. A. Wiedermann, has furnished a brief sketch of 446 pages, in which the outstanding characteristics and rubrics of Egyptian civilization are catalogued and discussed, with notes and outlines. The book offers a very convenient survey of the subject, based for the most part on the available monographs and special treatises with which the author possesses a wide acquaintance. This treatise is intended especially to present the Egyptian people, their land and culture, from the end of the Stone Age to the incoming of the Greeks. The author has wisely chosen to offer only a very brief account of the writing and language of the Egyptians. It is perhaps regrettable, however, that the limits of the work have obliged him to treat both the religion and the art with similar brevity. On the other hand, the customs and usages are more fully presented. The literature is very fully adduced in footnote citations, for there are probably few scholars who have so industriously maintained a complete *zettelkasten* of the current literature in all branches as Professor Wiedermann has done. If the work lacks literary charm and readability, we must nevertheless be the more grateful for the wide range of citation in compact and convenient form which this very industriously compiled survey offers us. It is a book which every technical library of anthropology and culture history will find indispensable.

JAMES H. BREASTED

SOME NEW PUBLICATIONS

Allen, Glover M. Dogs of the American Aborigines (Bulletin of the Museum of Comparative Zoology at Harvard College, vol. LXIII, no. 9, 1920, pp. 431–517, 12 pls.).

Czekanowski, Jan. Wissenschaftliche Ergebnisse der Deutschen Zentral-Afrika-Expedition 1907–1908 unter Führung Adolf Friedrichs, Herzogs zu Mecklenburg. Band VI, Forschungen im Nil-Kongo-Zwischengebiet. Erster Teil: Ethnographie, Zwischenseengebiet Mpororo-Ruanda. Leipzig: Klinkhardt and Biermann, 1917. xvi, 412 pp., 2 maps, 4 pls., 186 figs., 14 pp. of music.

Foy, W. Zur Geschichte der Tanzkeulen von den Santa-Cruz-Inseln (*Ethnologica,* II, Heft 2, Leipzig, 1916, pp. 215–238).

Michelson, Truman. The Owl Sacred Pack of the Fox Indians (*Bulletin 72 Bureau of American Ethnology*). Washington, D. C. 83 pp., 4 pls.

Schmidt, Max. Grundriss der ethnologischen Volkswirtschaftslehre. 2 vols. I: Die soziale Organization der menschlichen Wirtschaft, 1920. II: Der soziale Wirtschaftsprozess der Menschheit. Stuttgart: Ferdinand Enke, 1921.

Speiser, F. (Mit Beiträgen von W. Foy.) Völkerkundliches von den Santa-Cruz Inseln (*Ethnologica,* II, Heft 2, Leipzig, 1916, pp. 153–214).

Thurnwald, Richard. Die Gemeinde der Banaro, Ehe Verwandtschaft und Gesellschaftsbau eines Stammes im Innern von Neu-Guinea; aus den Ergebnissen einer Forschungsreise 1913–1915. Ein Beitrag zur Entstehungsgeschichte von Familie u. Staat. Stuttgart: Ferdinand Enke, 1921. 274 pp.

DISCUSSION AND CORRESPONDENCE

Smoking and Tobacco among the Northern Dénés

I have followed with the keenest interest the details of the match between the two able wrestlers, Professors Wiener and Dixon, anent the origin of tobacco, and, for a reason of which a word shall be said in due time, the exhaustive paper of the latter on "Words for Tobacco" has especially appealed to me. Of course, I am not competent to judge of the merits or demerits of either thesis, and can only express the conviction of one who has not specialized on the subject that the first of the two contestants has indeed a hard proposition on hand if he really wants to convert people to his way of thinking. A priori, and without an adequate examination, it seems a desperate task to prove the non-American origin of the soothing weed. If I presume to venture just a few lines on that question, the blame must be laid at the doors of Prof. Dixon's treatment of the Déné equivalents for the word "tobacco" and the use of what some may consider that adjunct to modern civilization.

Before I offer any comment thereon, the circumstance of my being a native of France, who has been guilty of some books in the language of his fatherland, will perhaps excuse me for daring to confirm the appositeness of Dixon's strictures on the rendering of a few French terms by his opponent. French *prunes* is plums in English, and English prunes becomes *pruneaux* in French. Prof. Wiener seems to me somewhat disingenuous when he contends that "if necessary, the word *sèches* is added to distinguish the second from the first";[1] wherefrom one would gather that, in his estimation, the case with the French *prunes* is the same as that of the *raisins* of that language. Yet there is no similarity between the two; the French having but one word (*raisins*) to express the English "grapes" and "raisins," have to add a qualificative (*secs*) to differentiate the ones from the others, whilst, in the case of dried plums, they have a special term (*pruneaux*), which they constantly use to the exclusion of any periphrasis.

As to the translation at the bottom of p. 95, it goes without saying that Dixon is quite right. Wiener's assimilation of *épicerie* to "spices" might likewise be open to criticism, because the former is much more comprehensive than the latter, whose real synonym is *épices*.

[1] *American Anthropologist*, vol. 23, no. 1, p. 88.

But what I am chiefly concerned with is Prof. Dixon's nomenclature of Déné terms for the idea of "tobacco" and his deductions as to what they imply. In the first place, let it be distinctly understood that smoking was absolutely unknown to all the Carriers previous to 1792–93, when Alexander Mackenzie passed, almost unperceived, through the territory of the Southern division of their tribe, and the 26th of July, 1806, when representatives of our race, Simon Fraser and companions, first had any intercourse with the bulk of the Upper Carriers farther North. I have already described, on the authority of quasi eye-witnesses, the utter amazement of those people when they first beheld the operation of smoking.

> On landing, Fraser's men, to impress the natives with a proper idea of their wonderful resources, fired a volley with their guns, whereupon the whole crowd of Carriers fell prostrate to the ground. To allay their fears and make friends, tobacco was offered them, which, on being tasted, was found too bitter and thrown away. Then, to show its use, the crew lighted their pipes and, at the sight of the smoke issuing from their mouths, the people began to whisper that they must come from the land of the ghosts, since they were still full of the fire wherewith they had been cremated.[1]

Were additional proof that smoking and tobacco were originally unknown to the Carrier tribe of the great Déné family necessary, I would submit that, (1) when I first came in contact with those Indians, almost forty years ago, there still lived among them a fairly large number of individuals whose parents were fully grown up when they saw Fraser and his men land on the shores of Lake Stuart; (2) I was personally acquainted with an aborigine who had been born quite a few years before the advent of the whites, though he happened to be elsewhere on the day of their landing at *Tsaotce*, or the mouth of the Beaver River; and (3) the language of the Carriers decidedly bears them up in their contention.

To this very day, they have no word for pipe other than that for stone. With them *stšé* primarily meant "my stone"; but, in common parlance, it has come to stand for "my pipe," because the first pipes they made were of that material.[2] Should they wish to be more explicit, they will say *se-œte'ka-tšé*, "my tobacco stone," but in no case have they any term especially descriptive, or even simply denotive, of that particular object which we call a pipe.

As to the verb to smoke, they have formed a synonym by hitting upon the most expressive kind of onomatopoeia possible. Let any one

[1] *Primitive Tribes and Pioneer Traders*, p. 62, of third edition.

[2] See specimens of these in my "Notes . . . on the Western Dénés," pp. 36–38.

light a pipe, and his tongue and lips will produce a succession of sharp sucking sounds, which cannot be better rendered than by the monosyllable *tæt* pronounced with a lingual explosion (*'tæt*). This the Carriers verbified by prefixing the pronominal crements *æs-*, *în-*, *æ-*, etc. (*æs'tæt*, I smoke; *în'tæt*, thou smokest; *æ'tæt*, he smokes, etc.), words which have, morphologically, no reference to escaping smoke, but connote the noise produced by the lips of the smoker.

There now remains the Carrier word for tobacco, *æte'ka*—not *teka* as Prof. Dixon has it, and still less *tsabara*, as he also gives it, probably on Petitot's authority. Initial *æ-* of the first term is so essential that it does not disappear with the prefixing of a possessive pronoun, as is usual with most words commencing with that letter. Instead, therefore, of saying *ste'ka*, we will have *se-æte'ka* when we speak of "my tobacco." On the other hand, *æteka* (without the click on the *k*) means "powder horn."

As to *tsabara*, it is a compound with a perfectly Déné complexion, which, however, corresponds to no idea akin to that of tobacco. The reader will grasp its true signification when we analyze it for him: *tsa*, beaver; *ba*, contour, profile; *ra*, hair.

But what of *æte'ka*? Where did that vocable originate, and how did the Carriers of one hundred and fifteen years ago happen to hit upon it in order to designate the new product introduced among them? These are questions which have long puzzled me, and to which I am sorry to say I have not yet found any answer. What I wrote in that connection thirty years ago is just as much to the point today as it was then, and will, for that reason, bear reproduction here.

The word *æte'ka* "must be either a borrowed word or a word formed by agglutination, as the name of the horse (*yezih-li*, 'elk-dog,' or domestic elk). Now I have studied that word in the vocabularies of over twenty tribes, all contiguous, mediately or immediately, without being able to discover anything like an homonymous equivalent. On the other hand, the two parts of which it is composed, *æte-* and *-'ka*, are genuine Carrier particles which, taken separately, are not without meaning, but to which no rational signification can be ascribed when joined together. Yet the names of all new objects in the Déné languages are either borrowed from foreign dialects, or more generally formed by compounding, that is by the juxtaposition of two or more names of objects already known. Thus, in Tsilkoh'tin the name of tobacco is *tsælyu*[1] which

[1] And not *tsulu*, as Prof. Dixon now has it, p. 27. The Chilcotins say for "I smoke" *tsêltêcyu*, which seems to correspond to "I make soot medicine," though medicine for bodily ailments is with them *tatapæn*. Yet, within the same class of concepts, they have *nina-Kwoen*, a totally different root, for "eye medicine or water."

means 'smoke [or rather soot] medicine.' Altogether the Carrier (and Tšékéhne) word designating that imported plant has the appearance of an old root of the second category, which is to me inexplicable." [1]

Furthermore, the all-important glottal explosion on the last syllable of *æte'ka* absolutely bars the possibility of any analogy between it and the Tlingit *-gan* tentatively suggested by Prof. Dixon. Will not someone propose a better guess?

I have divided the Carrier substantives into four different classes,[2] which shall be minutely described and conscientiously studied when my Lexicological Grammar, now almost ready for the press, is out. In a former essay[3] I also showed how the relative priority of a concept, the approximate sociological age of an object with regard to a tribe, could pretty accurately be surmised by the category to which belongs the word which expresses it. The fourth, which is that of the verbal nouns, is almost exclusively made up of words which are expressive of things, implements, or contrivances of a fairly modern introduction, quite often due to the Caucasian invasion of the Northern wilds. We have already seen by contemporaneous testimony that tobacco and smoking are a comparatively recent importation among the Carriers of the far Northwest. If we are to trust the natural inferences suggested by philology, the chances are that tobacco will prove adventitious amongst the other Northern Dénés as well, even if we take as a gauge the native terms therefor adduced by Prof. Dixon.

Thus, to mention those which have the appearance of being genuine, Loucheux *tse'ted*, Dog-Rib, *tsede'ti*, Hare *tsee'turi* and Chippewayan *t'sæl'tui* are all so many verbal nouns which correspond to "that which one sucks in." [4] Moreover, I do not recollect having ever heard the act of smoking, let alone the notion of real tobacco, mentioned once in any of the many Dené legends that have been narrated to me, or which I have read in the works of reputable authors.

As to the *na-* element in the Southern Dené words for tobacco, Prof. Dixon attaches to it, I fear, too great importance when he calls it a stem, and possibly misestimates its true import when he suggests that its presence there "might be taken as evidence that the separation of this

[1] Note §, p. 37 of my "Notes . . . on the Western Dénés."

[2] "The Dené Languages," pp. 181–182, *ap. Trans. Canadian Institute*, vol. I.

[3] "Notes . . . on the Western Dénés," pp. 32–34, *ap. Trans. Can. Inst.*, vol. IV.

[4] Dixon gives *tseen'tu* for the Montagnais and *ts'Elt'ui* for the Chippewayan. May I ask what is the difference between the two tribes? (The *tt* of Petitot and other missionaries in the Far North corresponds to my exploded *'t*; hence my transcription of Dixon's Dené terms.)

Southern group took place before the use of tobacco was known." [1] To me that monosyllable would predicate a different, though somewhat analogous, inference, namely that the use of tobacco is older in the South than in the North, and here are my grounds for that opinion.

In their original build, the Déné languages are precise and logical to a nicety. Whenever they render any of those acts which normally consist of many parts or reiterated movements, they generally incorporate in, or prefix to, the words therefor the particle *na-*, which denotes iteration. For instance, the act of sharpening, or grinding, an edge cannot be properly accomplished by a single motion of the hand or application of the stone or file. That motion must, on the contrary, bé repeated quite a number of times, or, if you will, a cutting tool has normally to be sharpened from time to time. Hence the verb to express that action in Carrier is *na-s'kas*, which, though meaning morphologically "I sharpen over again," has come to designate the simple act of sharpening. In like manner, you require a number of movements of the arm and hands to wring clothes; the Carrier expression for this will therefore be *na-skræz*, a word which, iterative in its material make up, is none the less simply positive in signification.

In another order of ideas, it is but natural here below to feel cold at times; such an experience is, as a rule, of more or less frequent occurrence. So, to denote that state, you will have recourse to the iterative particle, and say *na-sœstli*, in the same way as you will employ the verb *na-nisthi* when you refer to that common act of sleeping which occurs at least every night.

All of these verbs can be used without the iterative prefix; but then, instead of calling to mind an ordinarily oft-repeated action or state, they will imply that this happens either for the first time, or in such a singular, uncommon, or striking manner that it is singled out for non-iterative expression; in a word, that it must be regarded as unusual. Thus *æs'kas* and *æsræz* [2] mean respectively: I sharpen and I wring for the first time; while *sœstli* is perfectly good Carrier for "I undergo an accidental, unexpected, or violent attack of cold," "I take cold," and *nisthi* is the equivalent of "I am sleeping out of my regular hours," "I fell asleep."

Now what is said of iterative *na-* coupled with verbs naturally applies with equal force to the same particle joined to nouns. But to me that is precisely the element which enters into the composition of Navaho and

[1] P. 28.

[2] The *k* in *na-skræz* is called out by the *n* of *na-*.

Apache *na-'to* and Jicarilla *na-'todi*, which I take to mean literally "that which is over again sucked in." In fact, I feel all the surer of the accuracy of my analysis as I see that the same Navahoes who say *na-ac'to* for "I smoke" reduce the verb to *ec'to* when they intend to point to the act of beginning to smoke.[1]

From which I infer that the language connected therewith has, with time, come to conform to the above-mentioned requirements of the Déné grammar, when it is a question of naturally repeated actions, or such as are reckoned of every-day routine, a condition which has not yet been attained in the North, where no related idiom uses the iterative prefix in connection with smoking or tobacco.[2] In other words, the Dénés of the south have had a longer experience with the soothing weed than those of the north.

I said above that I never heard of smoking or tobacco or saw any mention of them, in any of the legends which I was told by the Indians or read in books. To make this doubly sure, I have just scanned over the late Fr. Petitot's *Traditions indiennes du Canada Nord-Ouest*, a collection of excellently rendered myths which bears me up in my contention. After having given the main body of the Eastern Déné legends without a single reference thereto, the compiler presents us with an account of the advent of the first white people on Great Slave Lake. His informant is none other than the famous half-breed patriarch François Beaulieu, who was an old man at the time of the coming of the pioneer missionaries in the northern valleys.[3] The narrator enumerates the gifts bestowed, on that occasion, on the Indian chief by the leader of the newcomers; then he mentions tobacco, whereupon he puts the following words in the mouth of the latter:

"Ah! you naturally don't know it. It is called *tabac*.[4] Having said so, he gave to every one a pipe and some tobacco, and taught them how to smoke. But as soon as they had smoked: 'Ah! how bad it is!,' they said.

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[1] Cf. the Franciscan Fathers' *Vocabulary of the Navaho Language, sub voce* to Smoke.

[2] Dixon gives *tseakh* for the former, a word which well illustrates the helplessness of the scholar who is at the mercy of untrained travellers or writers for his linguistic material. The Nah'ane term for "tobacco" is *t'siK*, and the same aborigines say *Kaa-dëstsëh* for "I smoke"—no iterative particle in either word.

[3] They never spoke of him but as of "old Beaulieu." In fact, he was about 76 years of age when Father (afterwards Archbishop) Taché first met him in 1842.

[4] Though English-speaking, the first whites in the far north had to use French in their intercourse with the half-breeds and Indians, there being as yet no English half-breeds in the country.

They all set upon spitting, grimacing and whining, and it happened that some even vomitted." [1]

From all of which are we to conclude that tobacco is not a native product of America? By no means. Not any more, at least, than we can say the same of maize or the potato, because neither of these was known to the prehistoric Northern Dénés. It was never claimed that Nicotian tobacco originated even within what is now called British America.

A. G. Morice, O.M.I.

Saint-Boniface, Man.

[1] Translated from the literal version of Fr. Petitot, pp. 411–12.

BRIEF COMMUNICATIONS

The Alabama Anthropological Society

The Alabama Anthropological Society, now in its twelfth year, has been active since its organization and has accomplished results hardly hoped for in the beginning.[1]

To Dr. Thomas M. Owen, founder and first Director of the Department of Archives and History of the State of Alabama, belongs, in a large measure, the credit for the organization and success of the Society, which grew out of conferences held during the spring of 1909 between him and a few interested parties in the city of Montgomery.

Dr. Owen, when he conceived the idea of the organization of the Department of Archives and History in 1901, had, as one of his dreams, an archaeological survey of the State of Alabama, which later on, through the formation of the Anthropological Society, he was able to initiate. Born at Jonesboro, in Jefferson County, Alabama, December 15, 1866, the son of Dr. William M. Owen and Nancy McAdory (Owen), he was always interested in historical research, but began the practice of law immediately after graduation from the University of Alabama, in 1887, and was in practice from that date until 1901, with the exception of three years, 1890–1893, spent in the Post Office Department, Washington, D. C. While in the latter city he formed the acquaintance of men of his own temperament who in later years were able to assist him in his aspirations. He was one of the founders of the Southern Historical Association, and Secretary of the Alabama Historical Society after its reorganization in 1898, and was connected with all of the historical movements in the Southern States and with many of national scope.

He was not primarily a naturalist or anthropologist, but was interested in both natural history and anthropology. He promoted the organization of the Bartram Natural History Society, as well as of several patriotic societies, and led in the movement to create a number of historical, genealogical, and other kindred associations. The thorough,

[1] A notice of the founding of this Society appeared in the *American Anthropologist* (n. s.), vol. 11, no. 2 (Apr.–June, 1909), p. 325, and reports of its first six meetings in the following number, pp. 491–497.

whole-hearted interest with which he entered into any organization with which he associated himself resulted in his connection with practically every civic and community movement in the city of Montgomery. He married a daughter of Hon. John H. Bankhead, who, on his death, succeeded him as Director of the Department of Archives and History.

With Dr. Owen in the organization of the Alabama Anthropological Society were Professor Henry S. Halbert, long time a student of aboriginal history in the lower South, an authority on the Choctaw language, and a teacher of reputation; Peter A. Brannon, an archaeological student and collector, a pharmaceutical chemist by profession; Dr. Herbert B. Battle, an analytical chemist and President of Battle Laboratory; Edgar C. Horton, a meteorologist; and Buckner Beasley, a hardware merchant. These six men with two others—J. T. Letcher, a lawyer, and J. H. Paterson, a florist—formed the organization, which now has a membership of 34, being limited by constitutional provision to 36. Up to the present time 67 men have qualified for Active membership, while 52 have been enrolled as Associate members, and the Honorary membership is 10 living and 4 deceased. The Society was organized May 13, 1909, and an anniversary meeting is held on that date every year. Once each month, on the second Monday night, meetings are held in the city of Montgomery, except from March to November, when they take place at outside points of archaeological interest. Active members are required to attend all meetings. By recent resolutions, Non-resident Active members are admitted, but these are not required to participate. To date 132 meetings have been held. One meeting in each year is set aside as the annual outing trip, at which time the entire membership is expected to be present and participate in a two-day session at some point in the State associated with aboriginal history.

The objects of the Society are not strictly archaeological in character or ethnological in character, but are intended to include, in a broad way, everything of an anthropological nature connected with the State's history. While the general subject covers in large measure the history of the Gulf States, no special study of aboriginal life outside of the State is primarily aimed at.

From its organization until March 25, 1920, Dr. Owen remained at the head of the Society, with Dr. H. B. Battle as Vice-President and Peter A. Brannon as Secretary. On the death of Dr. Owen, Mr. Brannon was made President, Dr. Battle continuing as Vice-President at his own request, because he did not feel that he could give the time to the

administrative work of the Society. Mr. Beasley, who from the period of organization until 1915 was Treasurer, was succeeded by Dr. J. P. Bibb; R. B. Burnham succeeded P. A. Brannon as Secretary.

In 1910 the Society issued its first Handbook, which listed the known collectors and collections of Alabama material at that date. Further, there was shown by counties a list of mounds and earthworks so far located. Since then there have been issued a few circulars and papers, and the list of mounds and collectors has been added to materially. In 1920 another Handbook was issued, bringing the list of collectors down to that date, showing by local landmarks, and with a brief description, the location of all known aboriginal sites in Alabama, nearly two hundred in number, and containing much material of a bibliographical nature. It gives a brief résumé of the meetings held from May, 1909, through December, 1920. On July 1, 1920, the Society began the publication of *Arrow Points*, a little mimeographed bulletin, issued monthly to give to the members information and inspiration in their work. The bulletin carries about 20 pages in each issue, consisting of drawings, photographs, and brief biographical sketches, as well as reports on current explorations, the program of the succeeding meeting, and illustrations of recent finds.

The May number, a souvenir issue to commemorate the twelfth anniversary of the Society, carries as a supplement a map of twelve counties, showing the location of the mound and town sites therein, as well as topographical data necessary for the location of them. Another feature is the initial article of a survey of Montgomery County, to show the mound and town sites in that county. Each of the 44 located mounds and some ten or more unnamed town sites will be individually written up and illustrated with photographs. It is proposed to run this as a feature and gradually cover every county in the State. Montgomery, in the center of the State, is known to have been the site of Upper Creek, Alibamo, and Shawnee villages and towns, and the Society has located all of these known historically, as well as having made a complete survey of the entire county. Additional features are the monthly county place-name story and numerous photographs, drawings, and reports. Each month one county of the State is treated by a member of the Society, showing present-day place-names, which have been influenced in some way by aboriginal connection, either by name, association, or suggestion. The nomenclature of the State is rich in aboriginal suggestions and this feature in itself is a rich contribution to the local history of the State.

The Society, so far as the writer is aware, is the only one of its kind in the country. It is not intended to have the work strictly scientific; the historical implications of all our research work are equally held in mind. Popular discussions of local conditions, folk-lore, and traditions are encouraged. It is planned to make a survey of the State in a historical way and in an ethnological way and to cover the ground thoroughly. The Society works actively in coöperation with the Alabama State Department of Archives and History and makes reports to it, and this department has issued its two handbooks, but the monthly bulletin has no connection with the Department. The writer, who conceived the idea of the bulletin, is, however, directly indebted to the Department of Archives and History for much of the material which is used. The individual members are encouraged to do current work in the locating, mapping, sketching, photographing, and surveying of aboriginal points, thereby adding new material to the files of the historical department, as well as posting themselves on local conditions as they exist at the present time.

Since the organization of the Society its members have brought together as a Society collection a very representative group of archaeological objects, now on display in the State Museum, and some six of the members have large individual collections which will eventually be placed therewith. There are in these six collections more than 75,000 objects, and there have been added to the collections of the Alabama State Department of Archives and History more than 50,000 through the Society's work.

PETER A. BRANNON

MONTGOMERY, ALA.

PROCEEDINGS OF THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

Meeting of October 26, 1920

THE 548th meeting of the Society was held at the United States National Museum on October 26, 1920, at 4.45 p.m. Dr. Aleš Hrdlička, Curator of Physical Anthropology in the U. S. National Museum, addressed the Society on "The Anthropological Problems of the Far East and the Pacific."[1] The lecture was carefully prepared and dealt with a subject with which Dr. Hrdlička was most familiar, both because of long study and recent field work.

He emphasized first of all the great importance and central position of the study of the anthropology of Asia. There are, indeed, in that field greater problems than any which the American field offers, problems which are connected with the origin of man and of the peoples of Europe. The lecturer divided the problems into two large classes: (1) the more particular problems, and (2) the more comprehensive questions.

The particular problems were arrayed according to ethnic areas. Beginning in the extreme northeast, the speaker described the Chukchee and neighboring peoples, considerable study of which has been made by Russian scientists. The resemblance and relationship of these peoples to the American Eskimos and Indians was clearly discussed. Next in order came the Ainus, Gilyaks, and related peoples of Sakhalin and the Amur region. The Ainus undoubtedly held the whole of Japan at one period; there are some indications that they may have spread into Japan from the north. The relations between the Ainu and other elements which have gone to make up the Japanese people are still far from clear. The anthropology of Japan is one of the most important problems. The Chukchee, Ainus, etc., are now on their decline and there is the greatest need of a thorough and immediate investigation of them from every anthropological standpoint.

The Mongolians were next discussed. Many individuals look almost exactly like American Indians, while others, in the western part of the territory especially, show indications of mixture with white people, ex-

[1] The paper has been published in fuller form in *Science*, issue of December 17, 1920.

hibiting occasionally even blue eyes and white skin. They speak five different dialects, and their songs are strikingly like those of the American Indians. Dr. Hrdlička also pointed out interesting connections between the religious practices of the Mongolians and the Indians, for although the Mongolians have long been converted to a form of Buddhism, they still evidently retain a number of native religious observances.

The problems of China were discussed at some length. Considerable physical and other differences exist between the northern and southern Chinese. These remain to be investigated. The anthropology of Tibet is also still imperfectly known.

When we pass south of China one important group is the Malays. Here we also find one of the most enigmatic of all the existing groups of humanity, namely the Negrito. The Negrito must originally have occupied a much larger area than at present; there are traces of them even in southern China, Burma, and Indo-China. It is probable that before the influx of stronger peoples from the northwest they played an important part in the peopling of Asia. The relationship of the Asiatic Negrito to the African Pigmy is also uncertain, for if there is a relationship it is difficult to explain because of geographical remoteness.

Our knowledge of the Polynesians, Australians, and Melanesians was next briefly reviewed, and the anthropology of India and the adjacent region to the west was then discussed. We see in India a number of diverse elements.

Coming to the comprehensive problems, Dr. Hrdlička first touched upon the peopling of Asia. There is no line of demarcation between the whites and the yellow-browns as there is between the browns and the blacks, while, on the other hand, as the speaker had already pointed out, the Asiatic and American peoples shade into each other. Here is surely a great field for scientific determination.

Perhaps the most comprehensive problem of all is that of the origin of man. In the island of Java have been discovered the remains of a creature that is the closest to man of all non-human forms thus far known. Whether this being was directly ancestral to man or not does not matter; many things indicate that region as a possible site of man's earliest differentiation or his origin. Explorations in that field have thus far barely touched the surface. There are vast promising deposits, and an almost endless number of caves that demand exploration. Of all the fields of anthropological research, here is the most pregnant. And it lies fallow.

Connected with the preceding is the problem of why early man did not populate the mainland of eastern Asia. In all this part of Asia, extending to the Turkestans, there has not been found thus far a single object which would unquestionably point to man's geological antiquity. The objects thus far discovered over these vast regions are of the Neolithic period, and apparently not even the oldest parts of the Neolithic. A large portion of China is covered by a peculiar Quaternary geological formation, the so-called loess. The loess is generally poor in fossils, and geologists incline to the opinion that during the deposit of these accumulations the great region thereby covered was probably not as habitable as it is today; that it did not offer sufficient resources for man or many animals; and that the loess formation may represent conditions such as now exist in the Turkestans or southern Mongolia. But the actual facts are still to be established. All this shows the great need of investigation.

One of the interesting sidelights brought out in the lecture was the curious fact that although China has been densely populated in more recent times, the population did not spill over into the less thickly populated islands to the southeast.

The paper was discussed by Mr. Holmes, Mrs. Zelia Nuttall, Dr. Michelson, and Dr. Swanton.

Meeting of November 16, 1920

At the 549th meeting of the Society, held at the National Museum, at 4.45 p.m., on November 16, 1920, Mr. Sylvanus G. Morley, Associate of the Carnegie Institution of Washington, addressed the Society on "The Hieroglyphic Writing of the Ancient Mayas." Mr. Morley illustrated his presentation with charcoal drawings of the glyphs. After telling of the Maya habitat, travel divisions, and history, and outlining the ethnology of the people, the speaker pointed out that it must be admitted that little progress has been made in deciphering the Maya hieroglyphics, with the exception of those relating to the calendar; but as these comprise nearly half of all the glyphs, we may nevertheless be encouraged by what has been accomplished. Furthermore, very slow progress is being made in the determination of some of the non-calendric glyphs, and the speaker referred especially to an increase in our knowledge of glyphs indicating colors, which have been worked out by Mr. W. E. Gates during the past few months.

The ancient Maya Indians had two systems of numerical notation comparable with the Arabic and Roman systems in use among ourselves. The first of these, which may be compared with our Roman numerals, expresses the numbers by varying combinations of dot and bar. The second, which the speaker termed the Arabic notation of the Mayas, employs a distinctive type of head for each of the numerals from 0 to 13 inclusive. The speaker then discussed and illustrated the various signs employed for the days and years of the Maya calendar. He told of the linking of the Maya chronology with our own and wrote out birth dates of members of the Society in Maya chronology, using Maya symbols.

At the conclusion of Mr. Morley's lecture, Mr. W. E. Gates, of Baltimore, gave an interesting and enthusiastic talk of ten minutes on the subject of Maya writing, and told especially of the recent progress which he has made in the deciphering of color symbols to which Mr. Morley had referred in his talk.

Meeting of December 14, 1920

THE 550th meeting was held in the National Museum, at 4.45 p.m., on December 14, 1920, and had as program an illustrated lecture by Mr. S. D. Bullock, of the Bureau of Plant Industry, Department of Agriculture, entitled "Ten Years Among the Araucanians of Chile." Mr. Bullock has lived for ten years among the Araucanian Indians of the vicinity of Valdivia, Chile, as industrial teacher of the Indians, and knows them and their customs intimately.

The Araucanians, some 50,000 in number, are at present in the best possible shape for study. Many individuals among them everywhere speak Spanish, while the native language is retained, and ancient customs are also retained to a surprising degree. The climate where these people live resembles somewhat that of Puget Sound, and is healthful, although disagreeably windy during part of the year. Houses of the aboriginal type are still to be found. The material culture is quite rich. The Indians, for instance, weave blankets ornamented with beautiful and intricate native designs. Weapons and even household utensils of primitive type are still abundantly to be seen.

Among the lantern slides perhaps the most interesting of all were those showing the fiestas of these Indians and the practices of the medicine women. For the doctors among the Araucanians are women, just as among the Indians of the lower Klamath River in northern California.

At the close of the lecture Mr. Bullock exhibited some Araucanian costumes and other objects. Questions were asked by Lieut. W. E. Safford and others.

Meeting of January 18, 1921

THE 551st meeting was held at the National Museum, at 4.45 p.m., on January 18, 1921. Mr. William E. Myer, of Nashville, Tennessee, gave a lecture on "Recent Explorations in the Cumberland Valley, Tennessee," being an account of archaeological field work done by him in 1920 for the Bureau of American Ethnology. The talk was illustrated by lantern slides.

Mr. Myer described first how he unearthed the ruins of an ancient Indian walled town in Davidson County, Tennessee. This town covered eleven acres and contained traces of the wall embankments and of a town square and the ruins of a temple with its altar, and also earth circles marking the sites of about 125 ancient buildings. These buildings yielded a large amount of pottery fragments, broken animal bones, and other material which throw some light on the domestic pottery, food, and other details of the every-day life of the ancient inhabitants.

He also described the Fewkes Group, in Williamson County, Tennessee. This site had been inhabited at different times by two distinct peoples. The earlier of these was a flexed-burial people; the later was a people who buried the bodies extended full length and lying on their backs. The first or flexed-burial people built the five mounds of this group. Mound No. 2 showed traces of three different stages of erection, and also traces of the buildings erected on each of these stages. One of the most important finds in this mound was the remains of a small sacred chamber which contained traces of a wooden image and an arrangement of stones, probably part of an ancient shrine, and also a quantity of sacred maize and maize meal.

Two fine altars were found in the Fewkes Group.

He also described the great group of mounds on Harpeth River at the mouth of Dog Creek, in Cheatham County, Tennessee. These ruins, which consist of eight great mounds and traces of embankments and cemeteries, extended about two miles and covered portions of two bends in the Harpeth River. The principal mound of this group is the fifth largest mound in the United States.

The lecturer showed photographs of the great ancient Indian fortress discovered by him at the junction of Harpeth and Cumberland Rivers, in Cheatham County, Tennessee. This natural fortress extends three-

quarters of a mile along the summit of a knife-edged, almost perpendicular series of cliffs, on a long, narrow tongue of land between these two rivers. Both the Cumberland River side and the Harpeth River side are almost perpendicular. The summit is only from 200 to 300 feet in width. On this summit are several mounds. He found traces of breastworks commanding the few points scalable by man.

The speaker showed a map of the city of Cisco, discovered by him in Madison County, western Tennessee. This great city had walls about six miles in circumference, covered over 800 acres, and contained 35 mounds, ranging from one foot to 73 feet in height. The main mound was 73 feet high and about 320 feet across the base. This main mound was defended by a series of inner breastworks which formed an inner citadel. The ruins of this city are probably second in extent only to the great mound group of Cahokia.

The lecture was discussed by Dr. Fewkes and others.

Meeting of February 8, 1921

THE 552d meeting was held at the National Museum, at 4.45 p.m., on February 8, 1921. Lieut. W. E. Safford, of the Department of Agriculture, spoke on "Old and New Samoa." The lecture was illustrated by original slides. Lieut. Safford made his first visit to Samoa on the U. S. ship Mohican in 1888, before Robert Louis Stevenson came to the islands, and made a second visit in 1899, two years after Stevenson's death.

Mr. Safford stated that

Samoa is the name of the group sometimes called the Navigators' Islands, situated about 4,200 miles southwest of San Francisco. Tutuila, the principal island belonging to the United States, is approximately in latitude 14° 20′ south and longitude 170° 40′ west of Greenwich. It possesses one of the finest land-locked harbors in the world, Pangopango. The natives are pure Polynesians, belonging to the same race as the Hawaiians, the New Zealanders, Tahitians, Marquesans, and Easter Islanders. They are of fine physique, with regular features, and straight or slightly wavy black hair. The islands are volcanic, with barrier coral reefs surrounding them. Rose Island, at the eastern extremity of the group, is a typical coral atoll.

American Samoa is governed by an officer of the United States Navy, detailed by the Secretary of the Navy. The wisdom of the government in dealing with the natives is shown by its methods of administration. Ancient Samoan customs are followed as closely as possible. The villages choose

their own chiefs from those who have hereditary rights to the position, subject to the governor's approval. The villages are grouped into counties ruled by high chiefs, and the counties are grouped into three great districts, Eastern Tutuila, Western Tutuila, and the District of Manu'a, each of which has at its head a chief appointed by the governor. At the end of each year there is held a general fono or assembly to which all parts of the islands send delegates. In this assembly matters of general interest are discussed, new laws recommended, complaints and suggestions are listened to, laws are explained, and information given regarding all matters affecting the welfare of the natives and the administration. Suffrage is restricted to the heads of families (*matais*) in accordance with Samoan custom, the family and not the individual being considered the unit of society.

There are no public lands in American Samoa. Even the land occupied by the Naval Station was acquired from the native owners by purchase. A few small tracts are owned by foreigners, who acquired their titles before the American occupation.

The islands of Upolu, the home of Robert Louis Stevenson, and Savaii, the scene of recent volcanic activity, were seized by the Germans, who kidnaped woolly-headed Solomon Islanders for laborers on their plantations. They have now come into the possession of the English, and are under the administration of New Zealand.

Views were shown of the vegetation of a sea-beach, with its fringe of coconut palms, forests, village environs, and mountains, including a beautiful crater lake on the island Upolu, called *Lanu-to'o*. These were followed by others illustrating the physical characteristics of the natives, the construction of their houses, their outrigger canoes, and the great double canoes formerly used in warfare, the coconut-trunk bridges spanning the mouths of streams, their arts and handicrafts, including the making of bark-cloth from the inner bark of the paper-mulberry, nets from the fiber of certain nettle-like plants, mats from the leaves of Pandanus and Freycinetia leaves, war-clubs and spears from various hard woods, carved bowls for holding ava, water-vessels from the shells of coconuts, and various other utensils. Other illustrations showed their games and pastimes including that of sliding down the face of a slippery rock over which a cascade is pouring, sitting dances, and the ceremonial serving of ava, an infusion prepared from the roots of *Piper methysticum*, an aromatic pepper, which has accompanied the Polynesians in their migrations and has been established in all climates which permit it to grow.

Attention was called to the homogeneity of the true Polynesians, as distinguished from the Melanesians and Micronesians, the remarkable

similarity of the myths, traditions, calendar-systems, and tabus of widely separated island groups, the identity of nearly all primitive words in their languages and the resemblance of these to corresponding words of the Proto-Malayans. Examples were given in parallel columns of words illustrating what may be called a Grimm's law of Polynesian dialects and also of the resemblance of certain Polynesian words to corresponding words in the languages of Guam, the Philippine Islands, islands of the Malay Archipelago, Formosa, and Madagascar. Especially interesting are the vernacular names of the principal economic plants of the Polynesians, most of which are identical throughout Polynesia from Hawaii to New Zealand and from New Zealand to Easter Island. All of these plants, with the exception of the sweet potato, may be traced to Malaysia, the cradle of the Polynesian race. The speaker deprecated the erroneous theories repeated in recent years by popular writers, asserting the Polynesians to have been of Caucasian origin. He called attention to the results reached by the Rev. George Pratt, who, after having devoted forty years to the study of the Polynesians and their language, came to the conclusion that the Polynesians must have migrated from Malaysia before the primitive language of the Proto-Malayans had become corrupted by the inundation of Arabic and by the introduction of Sanscrit words from India. Just as the Arabic became softened by Malay influence so, he suggests, the Malay language may have been hardened by Arabic influence, changing such words as primitive *langi* (sky) to the modern Malayan *langit;* the name for fish, called *ika* by the Easter Islanders and *i'a* by the Samoans and Hawaiians, into *ikan; ua* (rain) into *ujan; ala* (road) into *jalan; afi* (fire) into *api.* It is not asserted that the Samoan and the other Polynesian dialects are derived from the modern Malayan; but it is quite certain that these two groups of languages had a common origin, and that the ancestors of the Polynesians were closely allied to those of the inhabitants of the Moluccas and Celebes, whom they resemble in physical appearance and language, as well as in their arts and handicrafts.

The lecturer showed views of landing parties sent ashore to quell disturbances on the island of Upolu in 1899, when Lieutenant Philip Lansdale was killed from ambush and beheaded by the natives belonging to the party of Mataafa, German candidate for the kingship of Samoa. He paid a tribute to Ensign Monaghan, who was the only one to remain with Lansdale when he was shot down, and who died by his side, defending him from the death-knives of the natives. Two days after the engagement the heads of these two friends were recovered from the natives and brought back in

a coffee sack by a Catholic missionary, to be buried with their bodies on the beach beneath the palm trees.

Views of Vailima, the home of Robert Louis Stevenson, were shown, with the roofs and walls riddled by bullet and shell holes, and the yard barricaded with stones; also the "Road of the Grateful Hearts" built through the forest to Vailima, by the chiefs whom Stevenson had rescued from the prison built by the Germans; and finally the tomb of the poet, on the crest of Mount Vaea. Dr. Safford secured two hundred volumes from the Vailima library, including books belonging to Stevenson's father and mother and to the two grandfathers, Robert Stevenson and Lewis Balfour, after whom he was named.

The lecturer spoke throughout from first-hand information. At the close of the lecture there was a discussion by Dr. Hough, Mr. Holmes, and others.

Lecture of March 21, 1921

At the 553d meeting, held at the National Museum, at 4.45 p.m., March 21, 1921, Dr. J. Walter Fewkes, Chief of the Bureau of American Ethnology, spoke on "The Fire Temple of the Cliff Dwellers." The ruin of the Fire Temple was excavated by him on the Mesa Verde National Park, Colorado, during the summer of 1920. The lecture was beautifully illustrated by slides.

Dr. Fewkes stated that it had long been surmised that the cliff dwellers had an elaborate fire cult, but it was only during the past summer that he was able to demonstrate that fact by discovering a building which he believed was especially dedicated to fire rites and the conservation of the eternal fire. To this cliff-house, which is situated in Fewkes Canyon not far from Sun Temple, he has given the name "Fire Temple," views of which were shown on the screen.

The creation of fire by artificial means, said the speaker, was the oldest and greatest invention man ever made, and its influence on the development of human culture was most profound. Fire is not only the mother of all the arts, but also a most important factor in the sociological and religious development of primitive culture. Destitute of fire, man would be little above a brute. The possession of fire enables him to live in climates otherwise prohibitive, to cook his food, and to smelt his metals. Some authors assert that the earliest habitations of man were constructed to protect his fire. No race of man is ignorant of fire, and there are no animals known with sufficient intelligence to kindle or replenish it. In such esteem must the inventor of fire have been held by

his contemporaries that he might well have been deified by them and looked upon as a supernatural being, possessed of magic power beyond their comprehension.

The ruin identified as Fire Temple is altogether exceptional in form: it consists of a court fifty feet long, with walls plastered and decorated with symbols, and flanked at either end by massive walled rooms. It has a large circular fireplace in the center built of stone. This fire hole was buried four feet below the surface when exploration began, but the removal of the accumulated earth revealed a fine floor. Around this court extends a stone bench forming a seat upon which the spectators no doubt sat during fire dances.

The wall of one of the rooms of the eastern building was finely plastered and bore painted figures that formerly gave the name of "Painted House" to the ruin. These paintings are those associated with fire ceremonies, and one of them represents the fire god who is still personated at the fire dance among the Hopi Indians. Other figures representing fire, mountain sheep, and priests playing on flutes also occur. Dr. Fewkes believes that this is the room where the new fire was annually kindled with great ceremony by artificial methods, and that after it had been ignited in secret it was carried to the court, when fuel which had been previously placed in the fireplace was ignited until it blazed to the roof of the cave. Around this fire ceremonial public dances were performed, similar to those which are at present celebrated among the Hopi or Navaho.

The symbolism on the walls of this building shows that fire making was connected with the production of life, and that the ancient cliff dwellers of the Mesa Verde regarded fire and life as synonymous, the creation of fire being analogous to the creation of life, a primitive conception which was discussed at some length by the speaker. The Fire Temple was regarded not only as the place where fire was created with ceremony, but also the building where an eternal fire was conserved from one year to another.

The lecturer then considered the various aspects of fire worship among other tribes of Indians, especially the Pueblos, and pointed out the many similarities in symbolism between the objects found and those used by the Hopi in their fire ceremony at the present day. He said Fire Temple on the Mesa Verde was the only aboriginal building in the Southwest especially devoted to the fire cult, and c'osed by pointing out

resemblances between Sun Temple and Fire Temple, which he ascribed to the intimate relationship of fire and sun worship in early times.

The lecture was discussed by Dr. Hough, Mr. Holmes, and others.

Meeting of March 22, 1921

THE program of the 554th meeting, held at the National Museum, at 4.45 p.m., March 22, 1921, was a paper by Mr. G. N. Collins, of the Department of Agriculture, on "The Origin and Early Distribution of Maize."

Mr. Collins stated that

it was necessary at the very beginning to dispel any impression that may have been created by the title of the lecture to the effect that the origin of maize has been discovered. The subject has been studied exhaustively from many angles but without positive results and the chief hope now lies with the archaeologists, who, it is hoped, will some day unearth the evidence that will replace conjecture with knowledge.

The plant itself, however, has settled one point regarding its domestication, viz., that maize is of American origin.

Although for many years disputed, this statement may now be made with assurance. So long as the argument was confined to archaeological and philological fields there was room for reasonable doubt, although the disputants seldom admitted as much, but with the recognition of the close relationship between maize and the native American grass Euchlaena or teosinte, together with the complete absence of maize relatives from the Old World, the contention for an Old World origin became untenable.

Although of American origin, there are some reasons for believing that maize may have reached Asia before the time of Columbus. At one time the balance of evidence was in favor of this view, but a rather extensive examination of the pre-Columbian Chinese literature, made by Mr. W. T. Swingle, failed to disclose any certain reference to maize. This, together with the evidence presented by Dr. Laufer, leaves the burden of evidence in favor of its post-Columbian introduction. The question should still be left open but in any case the introduction of maize into the Old World must have been long after its domestication and is therefore outside of the present discussion.

Before attempting to locate the place of origin more closely it will be well to consider the different theories that are held regarding the manner of its origin or domestication.

Viewed in relation to natural wild species, maize is a monstrosity. In any of its known forms it is quite incapable of maintaining itself without the aid of man. This fact alone dispels practically all hope of discovering the wild prototype of maize. To be wild this plant would have to be very unlike maize.

Instead of possessing adaptations for distributing the seed, the seeds are indehiscent on a closely packed spike and are further protected against dispersion by being surrounded by a series of long bracts or husks. The young plants are unable to compete with other vegetation. Neither is maize particularly resistant to drought, alkali, cold, or excessive moisture. All of the other cereals under favorable conditions may escape from cultivation and persist for a time unaided but there are no records of escaped maize. These facts must be kept in mind in attempting to trace the domestication of maize.

Three general theories of the domestication of maize have been advanced. Briefly stated, these are as follows:

1. The cultivated forms of maize descended from pod corn or *Zea tunicata*, which, it has been claimed, is a wild plant in Paraguay.

2. Maize has been derived by gradual evolution from some plant related to teosinte (*Euchlaena mexicana*), a native Mexican grass.

3. Maize is the result of a hybrid between teosinte and some other species of grass.

To these might be added a fourth theory which, so far as I know, has never been advocated by any one but which is worthy of consideration, viz., that maize originated as a mutation or sport from teosinte or some ancestor of teosinte.

The early accounts of maize abound in references to pod corn as a wild or primitive type of maize. The distinguishing feature of podded maize is that in addition to husks which cover the ear, each individual grain is completely enclosed by the glumes. Pod corn was first reported by August de Saint Hilaire in a letter addressed to the President of the French Academy of Sciences and published in 1829. The specimen presented by Saint Hilaire consisted of a part of an ear received by him from the Abbé Larranhaga of Montevideo. It was accompanied by the statement from the Abbé that this variety was cultivated by the Guaycuru Indians. This statement of Larranhaga's was questioned by Saint Hilaire, who claimed that the Guaycurus were a wild, non-agricultural tribe.

The podded ear was shown to a young Guarani Indian of Paraguay who had accompanied Saint Hiliare to France. This Indian recognized the specimen as from his country and said that it grew in the humid forests. Without apparent warrant the word "wild" has crept into this quotation until there are now many statements to the effect that maize, especially podded maize, has been growing wild in Paraguay.

There can be little doubt that pod corn is recognized as a variety in Paraguay but there is no reason for believing that it exists as a wild plant there or anywhere else. Pod corn as we know it would be quite incapable of maintaining itself without cultivation. Furthermore, pod corn is known

to have arisen more than once by mutation from non-podded varieties. The long glumes of pod corn are distinctly ancestral in character, nearly all grasses having the seeds enclosed in glumes after the manner of pod corn.

Although pod corn may not be considered as an ancestor of maize, the fact that it exhibits ancestral characters makes it a matter of great interest to know more of the part which it plays in the agriculture of the Indians of Paraguay.

In discussing the other theories of the origin of maize it will be necessary to make frequent reference to teosinte, the closest wild relative of maize. This plant is a tall grass unknown in the wild state outside of Mexico. It has much the general appearance of maize. The chief difference in habit is that instead of having a single stalk or a strong central stalk surrounded by a few slender branches or suckers the teosinte plant commonly produces numerous stalks of the same size. The tassel or staminate inflorescence is also more profusely branched and lacks the characteristic central spike of maize. There are many other minor differences but after all teosinte is much like maize except in its pistillate inflorescence or the part corresponding to the ear of maize. Instead of the thick ear bearing many rows of named seeds, the seeds of teosinte are borne on a much branched inflorescence, the individual seeds being loosely attached to one another like strings of triangular beads. The individual seeds instead of being naked are deeply imbedded in segments of the rachis which fall apart, each segment with its enclosed seed. In spite of these profound differences maize and teosinte hybridize freely.

The many resemblances between maize and teosinte, together with the fact that the two forms interbreed with perfect freedom, make it certain that whatever the origin of maize it must be intimately associated with teosinte or some near relative of that plant. Very little is known regarding the part played by teosinte in the economy of the natives of Mexico. It is planted by the pioneers of Mexico as a fodder plant but there is nothing to show that it has ever been used as human food. Here again I hope we may look to anthropologists for further information regarding the rôle of teosinte in the economic life of the aborigines of Mexico.

The idea that maize originated from some extinct ancestor of teosinte as a result of selection operating on small variations, while more plausible than the pod-corn hypothesis, seems very unlikely.

The theory of a hybrid origin seems to reconcile the evidence that maize is undoubtedly closely related to teosinte with equally clear evidence that many of the characters and tendencies of maize are entirely foreign to teosinte or the group of grasses to which it belongs. To argue this point would lead to detailed discussion of the morphology and genetics of the plants concerned, in which probably the auditors would not be interested.

From studies of the comparative morphology of maize and teosinte and hybrids between these two species, it is believed that this unknown ancestor of maize must have belonged to the Andropogoneae, a tribe closely related to Maydeae, in which maize and teosinte are placed. From the standpoint of human utilization this plant must have differed from teosinte in having naked or nearly naked seeds, borne on a rigid rachis. I am still hopeful that remains of this ancient food plant will be brought to light as a result of ethnological investigations.

The speaker stated that before an audience of anthropologists he felt some hesitation in stating his belief that in maize the New World has given man the oldest cereal. His hearers might think this just another instance of an enthusiast claiming great antiquity for his speciality. He said it would have to be admitted that definite proof of the claim can not be produced, but before dismissing it as altogether absurd he wished to recall to the attention of his audience some of the features that distinguish maize from the other cereals: (1) Maize is the only cereal so profoundly modified that its wild prototype is unknown; (2) maize is the only cereal completely dependent on man for existence; (3) maize is the only cereal known in a fossilized condition; (4) no other cereal compares with maize in the great diversity of its forms.

In summing up, the chief points which Mr. Collins wished to emphasize were:

That maize was domesticated in America, probably in Mexico.

That of the various theories proposed the one that best accommodates the facts is that maize arose as a hybrid between teosinte and an unknown plant with edible seeds.

That maize must have originated in a region where teosinte existed as a wild plant.

That maize has become differentiated to a very remarkable extent, a differentiation much greater than that of any other cereal.

That this differentiation took place before the earliest prehistoric records.

That the distribution of types existing at the time of the discovery of America was the same as that indicated by the earliest fossil and archaeological remains.

Thus Mr. Collins agrees on the whole with Harshberger, who advocated the theory that maize has been hybridized with some other close relative, but puts the relationship a little further off—for genetic reasons.

The paper was discussed by Dr. Hough, Prof. Hitchcock, Lieut. Safford, Mr. La Flesche, and others.

Meeting of April 5, 1921

THE 555th meeting of the Society was held in conjunction with the Medical Society of the District of Columbia, at the new home of the latter, at 1718 M Street, N.W., on April 5, 1921, at 8 p.m. Dr. George M. Kober presented as his address as the retiring president of the Anthropological Society of Washington for 1920 a paper entitled "A Plea for the Prevention of Permanent Disabilities in Childhood." In pursuance of the established custom of the Society, there was no discussion.

Dr. Kober stated that in his sociological studies of physically defective persons who contribute such a large contingent to our charitable and correctional institutions he became convinced, over twenty years ago, that many of those partial and complete disabilities could have been prevented by proper care and treatment in childhood. In order to determine the number of physically defective children in the graded public schools of the city of Washington, upon his request as Chairman of the Committee on Social Betterment of President Roosevelt's Homes Commission, the health officer and Board of Education authorized a general medical survey of the pupils. The examination was conducted by the medical inspectors of the schools under the immediate supervision of Dr. H. C. Macatee, Assistant Secretary of the Commission. The results were tabulated and it was found that out of the 43,005 pupils, 13,407 were colored and 29,598 were white. Among the colored children 3,784 instances of the defects listed in the table were encountered, or a relation of 28.2 per cent. Among the white pupils 11,520 notations of defects, a relation of 38.9 per cent. out of the whole, were encountered. The difference in percentage of defects between white and colored children was found to be solely due to a better condition of the teeth in the colored children. The total defects noted were 15,304, or 35.3 per cent. of the pupils examined. Of this number:

6,698 or 15.57 per cent. had defective teeth
2,176 or 5.05 per cent. had defective vision
2,062 or 4.79 per cent. were mouth breathers
934 or 2.17 per cent. were anemic
835 or 1.84 per cent. had defective hearing
727 or 1.69 per cent. were ill nourished
461 or 1.07 per cent. had strabismus (squint)
312 or 0.72 per cent. had discharging ears
272 or 0.63 per cent. were deformed

It was not deemed best to conduct physical examinations involving the removal of clothing, and hence the number of ruptured children and those having cardiac and respiratory defects could not be determined, but judging from the records of the Board of Charities and of hospitals the number is sufficiently great for serious consideration. The speaker pointed out that as a member of the Board of Charities he had recommended that the physicians to the poor, instructive visiting nurses, and agents of the Associated Charities be requested to encourage the parents of poor children to authorize operative procedures or hospital treatment for the prevention of permanent disabilities, and presented statistics to show that the results have more than justified a general acceptance of these principles.

It will be readily conceded that every crippled, deformed, or physically defective child should, if possible, be spared permanent disability, and no thoughtful parent should hesitate to act when attention is directed to the serious consequences of neglect. Poverty is no excuse for "the do nothing system," as the medical charities offer adequate facilities for persons unable to pay for the same.

The speaker then proceeded:

One of the beneficial results of the world war as well expressed by Surgeon General Ireland, "was a determination by examination of the actual physical condition of the adult male population of military age, and a consequent awakening of the nation to the necessity for efforts directed toward limiting the possibility for the continued evolution of physically defective citizens."

The examination of the registrants before December 15, 1917, resulted in the rejection of 29 per cent. This was before the industrial and economic classification of all registrants had been made. After this classification had been accomplished 14.5 per cent. were rejected by the local boards, and approximately 7 per cent. were rejected by the boards at military camps. This gives a total rejection of 21.5 per cent. Forty-seven per cent. of the men examined were found to have certain defects. Fifty-three per cent. were accepted as fully meeting the physical standard, with no defects recorded.

The percentage of rejections varied from 14.13 in South Dakota to 46.67 in Pennsylvania. The percentage of a large group of city boys was 21.68 compared with 16.89 per cent. in country boys. A comparison of Americans and persons of foreign birth shows that the rate of rejection for the American born was 13.64 per cent. and for the foreign born 17.14 per cent.

In the light of the foregoing facts, especially the results of the stock-

taking of American manhood as recorded by the draft board statistics, it is apparent that much can and should be done for the prevention of permanent disabilities in childhood. Indeed no system of education can be considered complete that does not provide for the promotion of physical education, including medical inspections and the correction of all remediable physical defects. Children are the most valuable asset of the nation, and every effort which makes for better health, a temperate, untainted, and virile race, will be the best safeguard in the prevention of disease, and greatly promote the efficiency and happiness of present and future generations.

In conclusion, the speaker also advocated military training between the ages of 18 and 20, because of its physical, hygienic, and moral benefits. During this period all physical defects of a remedial character should receive proper treatment.

Meeting of April 19, 1921

THE 556th regular meeting (42d annual meeting) of the Society was held at the National Museum, at 4.45 p.m., April 19, 1921. Dr. C. Hart Merriam, President of the Society, delivered a lecture on "The Indians of the Yosemite Region, California."

After tracing the history of this disappearing group of Indians, which belongs to the Mewan stock, the speaker told of their place names, the construction of their villages, their arts and food preparation, their interesting social division into a land and water phratry which he discovered a number of years ago, their mythology and beliefs, and their medicine-men.

The lecture was illustrated by a large number of slides showing the distribution of the dialects of the stock, the history of the Indians, the landmarks of the region, and the present survivors.

At the close of the lecture the annual meeting of the Society was held. The President called for the report of the Secretary, which follows:

SECRETARY'S REPORT

The Society has at present 51 active members, 6 life members, 4 associate members, 31 corresponding members, and 22 honorary members, making a total membership of 114.

Four new members have been added during the year: Mr. W. E. Myer, Mr. M. J. Caples, Mr. R. E. Montgomery, and Miss Ellen Hayes.

We regret the loss through death of one active member, Dr. Edwin Lee Morgan.

The customary number of meetings were held and the following lectures presented:

Aleš Hrdlička, *The Anthropological Problems of the Far East and the Pacific.*

Sylvanus G. Morley, *The Hieroglyphic Writing of the Ancient Mayas.*

S. D. Bullock, *Ten Years Among the Araucanians of Chile.*

William E. Myer, *Recent Explorations in the Cumberland Valley, Tennessee.*

W. E. Safford, *Old and New Samoa.*

J. Walter Fewkes, *The Fire Temple of the Cliff Dwellers.*

G. N. Collins, *The Origin and Early Distribution of Maize.*

George M. Kober, *A Plea for the Prevention of Permanent Disabilities in Childhood.*

C. Hart Merriam, *The Indians of the Yosemite Region, California.*

Respectfully submitted,

JOHN P. HARRINGTON,
Secretary

The Secretary's report was accepted as read. The President then called on the Treasurer for his report, which is as follows:

TREASURER'S REPORT

The following is a summary report of the transactions of the Treasurer's office for the year ending this day:

Cash balance on hand April 28th, 1920, the date of the last report of your Treasurer $108.77

Receipts

Membership dues for 1919	$ 10.00	
" " " 1920	31.00	
" " " 1921	170.00	
Dividends on Stock of Sanitary Housing Improvement Company	20.50	
Interest on Bank Deposits	1.53	233.03
Total receipts		$341.80

Disbursements

September 14, 1920,		
To J. S. Goldsmith for extra attendance at the Society's meetings	$ 4.50	
December 9, 1920,		
To J. S. Goldsmith for one extra attendant at Society meeting and electrician	5.00	
December 11, 1920,		
To The Am. Anthropological Association for the *American Anthropologist* served to Active Members	147.25	
December 14, 1920,		
To J. C. Proctor, for printing notice cards for Society's meetings	5.00	
February 25, 1921,		
To J. S. Goldsmith for the services of extra attendant and an electrician at the Society's meetings as per bill	13.50	
March 26, 1921,		
To J. C. Proctor for printing notice cards for the Society's meetings	5.00	
March 31, 1921,		
To J. P. Harrington, the Secretary, for reimbursement of expenses	16.24	
April 15, 1921,		
To J. C. Proctor for printing notice cards for Society's meetings	4.25	
April 16, 1921,		
To J. P. Harrington, the Secretary, for reimbursement of expenses	1.50	
Total disbursements		$202.24
Balance this day in Bank		$139.56

ASSETS OF THE SOCIETY

Current Account

Cash balance on hand this day on deposit in the bank of the Washington Loan and Trust Company	$139.56
Estimated value of unpaid dues collectable during the present fiscal year	45.00
Reimbursement of the Washington Academy of Sciences of one-half the expenses of a joint meeting with this Society	16.50

Investment Account

Stock of the Washington Sanitary Improvement Company (No. 505), 21 shares, par value $10.00, cost	210.00
Stock of the Washington Sanitary Housing Company (No. 222), 2 shares, par value $100.00 each, cost	200.00
One Coupon Bond E03217835 Second Liberty Loan Converted four and one-quarter Gold Bond of 1927–1942, which was received in exchange for No. 3598893 for fifty dollars, of the United States, Second Liberty Loan, bearing four per cent. interest, which had been purchased by direction of the Board of Managers out of the Life Membership Fund, then aggregating $51.98	50.00
The interest of two dollars on the first bond will be added to the Life Membership Fund which now is $4.41, making a total of	6.41
Total assets	$667.47

There are several outstanding bills amounting to about $44.00 which will reduce the cash balance of $139.56 by that amount. These will be paid on approval by the Board of Managers.

Respectfully submitted,

J. N. B. HEWITT,
Treasurer

Approved:

F. NEUMANN,
J. WALTER FEWKES,
FRANCIS LA FLESCHE,
Auditing Committee

The Treasurer's report was accepted as read.

The Society reelected the following officers for the ensuing year:

President, Dr. C. Hart Merriam.
Vice-President, Mr. Neil M. Judd.
Secretary, Mr. John P. Harrington.
Treasurer, Mr. J. N. B. Hewitt.
Board of Managers, Dr. Charles L. G. Anderson, Mr. Felix Neumann, Mr. Francis La Flesche.

JOHN P. HARRINGTON,
Secretary

PROCEEDINGS OF THE AMERICAN ETHNOLOGICAL SOCIETY

Meeting of October 27, 1919

THE American Ethnological Society, Inc., met jointly with the Section of Anthropology and Psychology of the New York Academy of Sciences at the American Museum of Natural History. Dr. Clark Wissler called the meeting to order at 8.30 p.m. The following members were present: Donohugh, Goddard, Gunther, Hagar, Hodge, Lowie, Nelson, Schleiter, Sullivan, Wissler. There was a fair number of visitors, among them Professor and Mrs. Alexander Zelenko, of Moscow, and Dr. Ralph W. Tower. Miss Erna C. Gunther, of 198 De Kalb Avenue, Brooklyn, who had been nominated by the Board of Directors, was unanimously elected a Fellow of the Society.

Dr. Clark Wissler spoke on "Recent Explorations in the Southwest," with special reference to the Aztec ruin in New Mexico, which has been explored for several years by Mr. Earl H. Morris. The lecturer enlarged especially on the chronological aspect of the problem, more particularly mentioning Professor Douglas's studies on trees used in house construction as a guide to the determination of time periods. The paper was discussed by Mr. F. W. Hodge and Dr. P. E. Goddard, while Mr. Louis R. Sullivan contributed some remarks on the physical type of the Basket-makers.

Since Dr. A. A. Goldenweiser, who was to have spoken on "Scientific Method in History," was prevented by illness from presenting his paper, the floor was thrown open for the ventilation of matters of anthropological interest and a number of brief communications were elicited. Dr. Lowie called the attention of members to the recent founding of a Belgian School of Anthropology in Liege, and Drs. Schleiter, Goddard, and Wissler discussed the services that might be rendered by anthropology in the solution of present-day problems.

Meeting of November 24, 1919

THE Society met at the American Museum of Natural History, with President Clark Wissler in the chair. Members present: Boas, Dono-

hugh, Goddard, Goldenweiser, Lowie, Mead, Ogburn, Parsons, Roberts, Schleiter, Spier, Sullivan, Wissler.

There was a brief business meeting. On behalf of the Board of Directors the Secretary presented the name of Professor Wm. F. Ogburn for fellowship in the Society, and he was unanimously elected. Then followed the program of the evening.

Dr. A. A. Goldenweiser spoke on "The Problem of Origins." He drew a distinction between the older "classical" point of view, according to which culture progressed along a definite path, and the modern conception of merely partial parallelism, with an indefinite number of intercrossings, convergent and again divergent developments. With the earlier school the original condition of an institution or other phenomenon naturally loomed as tremendously important, for it furnished the explanation of observed phenomena. From the present point of view the origin does not play the same part, merely satisfying a speculative longing to conceive the past without in any way illuminating the present. Nevertheless the tendency to gratify this craving must be recognized as justifiable, and the speaker instanced Professor Boas's and his own explanations of totemism and Dr. Lowie's theory of the sib as examples.

The paper was discussed by Drs. Lowie and Schleiter and Professor Boas. Dr. Lowie pointed out that the reason for seeking origins often arose in the attempt to account for similarities in distinct areas; also that in some cases the chronological factor enters; one condition is established as earlier, and the theorist then essays to derive from it the later phenomenon. Dr. Goldenweiser accepted these points as supplementary to his own. Dr. Schleiter emphasized the necessity of care in classifying the phenomena whose origin we are seeking. Professor Boas pointed out that in comparing the doctrines of unilinear evolutionists to those of biologists we are not quite fair to the biologists, since they do not postulate a single line of evolution without any divergence; what the cultural theorists of the earlier period did was to stress the orthogenetic character of cultural evolution.

Mr. Louis R. Sullivan then presented his "Notes on the Negrito Problem." He gave the distribution of pygmy races, showed tables giving their measurements, and demonstrated three Andamanese, one Bushman, and one Philippine Negrito skull. He inclined to the view that the pygmies do not form a single race, but so many local variants. In answer to a question by Dr. Lowie, he expressed himself as favoring the view of a connection between Hottentot and Bushman. Professor Boas

asked for the speaker's opinion on Kollman's theory. Mr. Sullivan said he did not believe in the occurrence of a pygmy-like prehistoric people in Europe, nor could he accept the theory that man's ancestors were of excessively low stature.

Meeting of January 26, 1920

Annual Meeting

THE annual meeting was called to order at 8.30 in the Academy room. In the absence of President Wissler, Dr. Boas took the chair. Present: Boas, Goddard, Gunther, Lowie, Ogburn, Parsons, Reichard, Roberts, Schleiter, Spier, Weitzner.

The Secretary presented the following report, which was adopted as read:

SECRETARY'S REPORT

The present membership of the American Ethnological Society, Inc., is as follows:

Life Members	13
Members	14
Fellows	84
Total	111

The number of Life Members has remained stationary, as has that of Members; that of Fellows has been decreased by one; that of the one-time Anthropological Fellows now reckoned as Fellows (18) by three. The total loss throughout the year has thus been four. This is partly due to resignations, partly to a more rigid sifting of non-paying Members in making this year's count. The census is of necessity somewhat tentative. The Secretary has retained the names of Members such as Mr. Jochelson, who has been beyond the reach of communication, and of all those Members who, in his opinion, are likely to meet their obligations to the Society. The Secretary regrets to announce the death of Dr. A. Jacobi, for many years a member of our organization. The Subscribers dealing directly with the Society number ten, the remainder deriving our publications through C. E. Stechert & Co.

The usual number of meetings were held during the year, the following titles being presented:

(January) Franz Boas, *Social Organization of the Kwakiutl.*

(February) Alanson Skinner, *Archaeological Explorations within the Limits of New York City;* H. J. Spinden, *The Indians of Eastern Nicaragua.*

(March) N. C. Nelson, *Exploration in the Southwest of the United States.*
(May) P. E. Goddard, *Observations on Apache Religion;* R. H. Lowie, *Medicine Bundles of the Hidatsa Indians.*
(October) Clark Wissler, *Recent Explorations in the Southwest.*
(November) A. A. Goldenweiser, *The Problem of Origins;* L. R. Sullivan, *Notes on the Negrito Problem.*

An account of the Proceedings from November, 1918, until May, 1919, inclusive, is to appear in the October–December issue of the *American Anthropologist* for 1919.

Respectfully submitted,

ROBERT H. LOWIE,
Secretary

The Secretary next presented the Treasurer's Report, duly audited by a committee previously appointed by the President, and the Report was adopted as read.

ANNUAL REPORT OF THE TREASURER OF THE AMERICAN ETHNOLOGICAL SOCIETY

January 1, 1920

Receipts

Balance on hand Jan. 1, 1920, Guaranty Trust Company	$ 680.75	
Balance on hand Jan. 1, 1919, Manhattan Savings Institution	2,564.97	
Interest from Guaranty Trust Co.	17.23	
Interest from Manhattan Savings Inst.	94.31	
Dues from members	462.12	
Dr. Lowie for "Ojibwa Texts" and payment for old publications	6.50	
		$3,825.86

Disbursements

Printing, secretarial expenses, and postage	$ 13.50	
American Anthropological Association		
for 86 memberships	86.00	
for publications	307.67	
American Museum of Natural History		
for attendants	10.00	
Guaranty Trust Co., bank exchanges	.84	
		418.01
		$3,407.85

Total Assets, January 1, 1920

On deposit in Manhattan Savings Institution	$2,659.28	
On deposit in Guaranty Trust Co.	748.57	$3,407.85

Respectfully submitted,
ELSIE CLEWS PARSONS,
Treasurer

Correct, January 21, 1920:
BELLA WEITZNER,
LOUIS R. SULLIVAN,
Auditing Committee

The following budget, based on a calculated probable income of $949.68, was presented by the Board of Directors and accepted by the Society:

For membership dues in the A. A. A.	$ 90.00
For the American Anthropologist	360.00
For secretarial expenses and attendants at meetings	25.00
Total	$475.00

On behalf of the Board of Directors the Secretary presented the following for election to fellowship: Miss Gladys A. Reichard, Furnald Hall, Columbia University, N. Y. C. Miss Reichard was unanimously elected.

As a nominating committee the Board next presented the following slate for the year 1920:

President, Robert H. Lowie.
First Vice-President, F. W. Hodge.
Second Vice-President, Clark Wissler.
Secretary, N. C. Nelson.
Treasurer, E. C. Parsons.
Editor, F. Boas.
Board of Directors (in addition to the above), P. E. Goddard, A. A. Goldenweiser, T. Mayer.

There were no additional nominations and the Secretary was instructed to cast a single ballot for the nominees.

Dr. P. E. Goddard was elected to represent the Society in the Academy of Sciences.

Owing to the resignation of Mr. Nelson, the Board of Directors subsequently appointed Miss T. Mayer to fill the vacancy created, and Professor Wm. F. Ogburn to act as an additional member on the Board of Directors in Miss Mayer's place.

The newly elected President now assumed the chair and, after thanking the Society, called upon Professor Wm. F. Ogburn to present the paper of the evening on "Dr. Rivers's Correlation of Psychoanalytic and Cultural Phenomena." Professor Ogburn gave an exposition of Rivers's lecture on "Dreams and Primitive Culture" and added a critical examination of its treatment of ethnological data. A lively discussion followed in which Dr. S. E. Jelliffe, editor of the *Psychoanalytic Review*, took a prominent part. Drs. Boas, Parsons, and Schleiter, and Miss Roberts also spoke.

Before adjournment the President welcomed to our midst Miss M. A. Czaplicka, well known for her book on *Aboriginal Siberia*, who had attended the meeting as a visitor.

At the preceding meeting of the Board of Directors it was decided to transfer the accumulated interest of the permanent fund to the current account. It was further passed that the Society henceforth pay the American Anthropological Association $4.00 instead of $3.50 for each subscription to the *American Anthropologist*.

Meeting of February 23, 1920

THE Society met in conjunction with the Section of Anthropology of the New York Academy of Sciences at the American Museum of Natural History. Dr. Robert H. Lowie presided. Members present: Gunther, Goddard, Goldenweiser, Donohugh, Reichard, Wissler, Spier, Schleiter, Weitzner, Lowie. Total attendance, 28.

Professor Harry E. Barnes, of The New School for Social Research, spoke on "The Significance of the Newer Anthropology for Sociology and History." The speaker contrasted the older anthropology with that of the modern schools and discussed the extent to which the new conclusions had penetrated sociological and historical circles. His position was that, while sociologists generally had been animated with an interest in ethnological work, they had yet failed to assimilate its later aspects; historians, on the other hand, had on the whole neglected the cultural field entirely, but thanks to their vigorous methods and logical training those who surveyed anthropological data at all had absorbed the modern anthropological viewpoint. Professor Barnes made

a plea for more earnest collaboration by the votaries of the several branches of knowledge.

The paper was discussed by Drs. Goldenweiser and Wissler and by Mr. Spier.

Meeting of March 15, 1920

THE Society met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences. The meeting was held in Schermerhorn Hall, Columbia University, and Professor R. S. Woodworth, chairman of the Section, presided.

The lecture of the evening was by Dr. W. H. R. Rivers, of St. John's College, Cambridge, England, who delivered an address on "Ethnology: Its Aims and Needs." The speaker expounded the theoretical views held by the new English school represented mainly by Elliot Smith and himself, emphasizing the contrast between the diffusionist position and the "classical" English point of view. The meeting was attended by a large audience, including numerous Columbia professors and students.

Meeting of the Board of Directors, April 16, 1920

THE Board of Directors met in the President's office in the American Museum of Natural History at 5 p.m.

A motion that the Society resume its publication was made and carried.

Professor Boas announced that he had located a publisher who would print the works decided upon at the approximate cost of a dollar a page. The motion was made and carried to appropriate $300 for the printing of one hundred pages of John R. Swanton's Haida texts and two hundred pages of Paul Radin's Winnebago myths.

The meeting was then adjourned.

Subsequently the motion was made and carried to substitute Prince's Passamaquoddy texts for Radin's Winnebago material.

Meeting of April 26, 1920

THE Society met in conjunction with the Section of Anthropology and Psychology of the New York Academy of Sciences at the Museum of Natural History, with Dr. Robert Lowie in the chair. Members present: Kroeber, Goddard, Ogburn, Mayer, Spier, Gunther, Nelson,

Reichard, Donohugh, Fishberg, and Lowie. Among the visitors was Mr. Barbeau, of Ottawa. The total attendance was forty.

There was a brief business meeting on behalf of the Board of Directors. Dr. Lowie presented the name of Mr. John S. Maynard for fellowship in the Society. He was unanimously elected.

Dr. Elsie Clews Parsons was the lecturer of the evening. The subject of the paper was "An Anvic's Narrative." It was an account of the customs of his tribe as told to Dr. Parsons by an Anvic boy, her sole informant. The age and sex distinctions in the observance of taboos and in the performance of certain definite social obligations were especially elaborated. Shamanistic practices and beliefs were also dealt with in detail.

The paper was discussed by Drs. Lowie, Goddard, and Kroeber. The similarity of certain customs among the Northern Athapascans was emphasized. Dr. Goddard raised the question of the relation between sex taboos and a sedentary or nomadic mode of life. In Dr. Kroeber's opinion the sex taboos among the Athapascans were connected with their more or less rudimentary forms of culture. He pointed out that adolescent and funeral ceremonies, owing to their personal character, are more intense when other phases of culture, particularly the ceremonial, are not so highly developed.

Dr. Boas, who was to have spoken on "The Religious Ideas of the Bantu of Portuguese East Africa," was unable to attend the meeting.

Meeting of October 25, 1920

THE Society met in conjunction with the Section of Anthropology and Psychology at the American Museum of Natural History. There was an unusually large attendance, eighty in all, many of the Columbia psychologists and psychological students being present. The meeting was called to order by Dr. Robert Lowie at 8.30 p.m., and the names of Miss Elsie Viault, Miss Lucy Freeland, Mr. Martin Gusinde, Mr. Paul Louis Faye, and Dr. Bruno Oetteking presented for fellowship in the Society. They were unanimously elected.

Professor Cattell, who was to have spoken on "Personal Memories of Wundt," was unable to appear, but sent a brief statement to be read. Professor M. R. Cohen spoke on "Wundt as a Philosopher," emphasizing his services in reestablishing the dignity of philosophy after the speculations of the "Naturphilosophen" had brought it into contempt, and also Wundt's refusal to subordinate intellectual to moralistic inter-

ests. Dr. A. A. Goldenweiser spoke on "Wundt's Contributions to Folk Psychology." He emphasized the progress made by Wundt over his predecessors Spencer and Tylor, first in introducing a more emotional standpoint in his folk psychology, second in laying stress on the social side of language, religion, and other cultural phenomena, and third in his broader and less naïvely rigid evolutionary conception. His main contribution, however, according to Dr. Goldenweiser, consisted in the introduction of the concept of apperception and everything he derived therefrom. Then a one-time philosophical student of Wundt's, whose identity is unknown, said a few words of appreciation, and finally Professor Woodworth made some informal remarks on Wundt as a promoter of psychological laboratory work.

Meeting of November 22, 1920

THE Society met at the American Museum of Natural History, with Dr. Robert Lowie in the chair. Members present: Boas, Dangberg, Maynard, Gunther, Nelson, Goddard, Reichard, Radin, Lowie, Mayer. Total attendance, 20.

There was a short business meeting. On behalf of the Board of Directors the Secretary presented the names of Spencer Trotter, Leon Godshall, Esther Schiff, Clara Hildeman, W. W. Hyde, George E. Schapelle, A. I. Hallowell, L. A. Harr, George E. Nitzsche, for fellowship in the Society. They were unanimously elected.

Dr. Lowie announced with regret the death of Dr. Wm. Radloff, Director of the Anthropological Museum of St. Petersburg and an honorary member of the Society.

The program of the evening followed. Dr. Lowie made some "Observations on Parfleches" to illustrate the utility of Flechner's method of experimental aesthetics in the characterization of primitive art. The method is chiefly of value for the differentiation of two very similar arts, and so Dr. Lowie chose for his illustration the parfleches of the Shoshone and the Crow, both of which tribes use the central rectangle as decoration. Though the number of parfleches was too small to determine results, there was evident, nevertheless, a tendency among the Crow to use a wider rectangle than the Shoshone employed.

Miss Dangberg then spoke on "The Shamanism and the Mythology of the Washo Indians." She pointed out three stages in the development of a Washo shaman: first, the acquisition of power; second, competition with other shamans—the shaman is killed if he loses a patient;

and the final stage, when the shaman becomes practically infallible—he never fails to ascertain the person responsible for the disease. Miss Dangberg concluded with a brief sketch of the mythological ideas among the Washo, which she said were more closely related to those of the surrounding tribes than were the shamanistic practices she had been describing.

The paper was discussed by Drs. Boas, Lowie, and Goddard, who pointed out certain analogies in the Apache and the California tribes.

Meeting of the Board of Directors, January 19, 1921

THE Board of Directors met in the Hotel Endicott at 1.30 p.m. Present: Drs. Boas and Parsons, Mr. Ogburn, Miss Mayer, with Dr. Lowie presiding.

The Secretary was unable to present a complete report owing to lack of information concerning the standing of the various members.

The Treasurer read her report, which was referred to an auditing committee to be appointed by the President.

The following were proposed by the Secretary as members of the Society: Miss Margaret J. McCoy, of Philadelphia, Pa.; Dr. P. J. Patterson, of Rexford, Kansas; Mrs. Shaw, of New York. As fellows of the Society: Mr. J. Wintemberg and Mr. Diamond Jenness, of the Geological Survey of Canada; Mr. Eldridge R. F. Johnson, of Morristown, N. J.; Mr. Michail Dorizas, of the University of Pennsylvania; and Dr. H. Z. Heronimakis, also of the University of Pennsylvania. They were unanimously approved for recommendation to the Society.

Plans for securing more subscribers to the publications of the Society were discussed. Professor Boas suggested that "El Folklore de Oaxaca" be included in the American Ethnological Society Publications. It was moved and carried that Dr. Lowie appoint a committee to negotiate with the Folklore Society to this end. Dr. Lowie appointed Professor Boas and Dr. Parsons to act on the committee.

As Auditing Committee, Dr. Lowie appointed Dr. Hyde and Mr. Nelson.

A budget for 1921 was prepared and itemized as follows:

For the *American Anthropologist*	$500.00
For membership dues to the American Anthropological Association	
For publications	160.00
For publicity campaign	25.00
	$685.00

As Nominating Committee, the Board proposed the reelection of the present officers:

President	Robert H. Lowie
First Vice-President	F. W. Hodge
Second Vice-President	Clark Wissler
Secretary	Theresa Mayer
Treasurer	Elsie Clews Parsons
Editor	F. Boas
Board of Directors (in addition)	P. E. Goddard, A. A. Goldenweiser, W. F. Ogburn

The motion was made and carried instructing the Secretary to ask the inviting body of the International Congress on Eugenics what scientific bodies had been asked to participate in the Congress. The Board of Directors deemed it desirable to have this information before appointing a delegate to the Congress.

On motion of Professor Boas, it was unanimously decided to sell current publications of the Society in Europe, accepting the European currency at par value, provided the Society incurred no financial loss thereby.

The meeting then adjourned.

Meeting of January 24, 1921

Annual Meeting

PRESIDENT LOWIE called the annual meeting to order at 8.15 p.m. The meeting took place in the Academy of Sciences Room of the American Museum of Natural History. The total attendance was twenty-eight.

The Secretary presented the following report, which was adopted as read:

SECRETARY'S REPORT

The present membership of the American Ethnological Society, Inc., is as follows:

Life members	13
Members (in good standing)	12
Members (in arrears)	1
Fellows (in good standing)	79
Fellows (in arrears)	19
Total	124

It has been deemed advisable to retain the names of the non-paying members, since some have been beyond the reach of communication, and the others will, doubtless, meet their obligations in the not too distant future.

The Secretary regrets to announce the death of Mr. Jacob H. Schiff, a life member of the Society.

The usual number of meetings was held during the year, the following titles being presented:

(January) Wm. F. Ogburn, *Dr. Rivers's Correlation of Psychoanalytical and Cultural Phenomena.*

(February) Harry E. Barnes, *The Significance of the Newer Anthropology for Sociology and History.*

(March) W. H. R. Rivers, *Ethnology: Its Aims and its Needs.*

(April) Elsie Clews Parsons, *An Anvic Narrative.*

(October) M. R. Cohen, *Wundt as a Philosopher.*

A. A. Goldenweiser, *Wundt's Contribution to Folk Psychology.*

(November) Robert H. Lowie, *Observations in Parfleches.*

Grace Dangberg, *Notes on the Shamanism and Mythology of the Washo Indians.*

An account of the proceedings of the Society from October, 1919, until January, 1921, inclusive, is to appear in an early issue of the *American Anthropologist.*

Respectfully submitted,

THERESA MAYER,
Secretary

The Treasurer then presented her report, duly audited by the committee previously appointed by the President. The report was adopted as read.

ANNUAL REPORT OF THE TREASURER OF THE AMERICAN ETHNOLOGICAL SOCIETY

January 1, 1921

Receipts

Balance on hand Jan. 1, 1920, in Guaranty Trust Co.	$ 748.57
Balance on hand Jan. 1, 1920, in Manhattan Savings Institution	2,659.28
Interest from Guaranty Trust Co.	1.06
Interest from Manhattan Savings Institution	100.52
Dues from members	555.12
From "Ojibwa Texts"	35.00
	$4,099.55

Disbursements

Printing and postage "Ojibwa Texts"	$ 791.36	
Goldman, Sachs & Co., Berlin, printing	200.00	
American Anthropological Association		
for publications	375.00	
for 97 memberships	97.00	
Amer. Museum Nat. History		
for attendants	4.50	
Guaranty Trust Co. for bank exchange	1.78	
		$1,469.64
		$2,629.91

Total Assets, January 1, 1921

On deposit in Manhattan Savings Institution	$2,415.12
On deposit in Guaranty Trust Company	214.19
	$2,629.91

Respectfully submitted,
[Signed] ELSIE CLEWS PARSONS,
Treasurer

The budget suggested by the Board of Directors was accepted by the Society.

The motion was made and carried instructing the Secretary to cast a single ballot for the reëlection of the present officers.

The names of those persons previously approved by the Board of Directors for membership and fellowship in the Society were then presented. They were unanimously elected.

Dr. Lowie thanked the Society for its vote of confidence and then called upon Mr. N. C. Nelson to report upon his recent trip to the Southwest. His investigations this time included a special reconnaissance of the Grand Gulch region of southern Utah and of the Mimbres Valley in southern New Mexico, and he incidentally gathered data on Pueblo ruins and Pueblo ceramics in southern Nevada and at several places in western and southern Arizona. In the Grand Gulch he determined the situation of more than one hundred ancient sites of Pueblo and Basketmaker origin, including burial places, great groups of pictographs, and cliff dwellings of from one to thirty rooms. In the open Mimbres Valley

he located more than thirty-five ruins, essentially pueblos of the northern Mexico type, with large rooms, deep metates, partly grooved axes, and with pottery partly of the Casas Grandes type. He concluded by stating that the general reconnaissance to date had brought to light not less than fifteen prehistoric ceramic centers, the relative ages of which can be provisionally determined without excavation.

Mr. Hodge, Dr. Lowie, and Dr. Goddard discussed the report.

Dr. Goddard next gave a talk entitled "A Dramatic Form of Folklore," which he has summarized as follows:

"The Athapascan tribes in the valleys of the eastern Eel River drainage have a strongly developed dramatic feeling as is shown in their folklore. The passage of time is indicated by repeating the daily routine in outline. The combined lapse of time and space as in a journey is a favorite form. The myths and tales of the Wailaki are told almost exclusively in the form of monologue or dialogue in such a manner that narratives are not necessary for following the action of the composition."

Professor Boas and Dr. Parsons took part in the discussion of this paper.

THERESA MAYER,
Secretary

ANTHROPOLOGICAL NOTES

Annual Meeting of the Anatomical and Anthropological Association of China

At the annual meeting of the Anatomical and Anthropological Association of China, held at Peking on Friday, February 25, 1921, a lecture was delivered by Dr. J. G. Andersson on "Archaeological Research in Inner Mongolia."

The speaker stated that, in the area under discussion, he had been able to establish the following archaeological epochs, beginning with the most recent: (1) The epoch of agricultural colonization, probably Ming dynasty; (2) the epoch of the stone effigies; (3) the neolithic epoch.

The first named is marked by the presence of a number of defense walls, apparently outworks to the Great Wall. They are, however, but small and weak structures which are now entirely crumbled down. The northernmost of these walls lies near Pan-Chiang, 275 kilometers from Halgau, and at the edge of the Gobi.

There are also numerous ancient walled cities and villages, the walls of which have also been reduced to low, grass-covered ridges. Within these enclosures have been found numerous metal objects, such as arrow heads and knives much resembling Siberian types, as well as charms and Chinese coins, mostly from the Sung dynasty.

Agricultural implements have also been found, such as millstones and thrashing stones, as well as plowshares. It is probable that those remains, or at any rate the majority of them, date from the Ming dynasty when the Chinese are known to have exerted a strong influence in this region, an influence which extended even into Outer Mongolia.

What is here called the epoch of the stone effigies is represented by a number of stone sculptures showing standing men of the type which is known from northern and western Mongolia. The age and ethnological affinities of those stone effigies is not known. The Mongols have no tradition concerning them.

A small number of neolithic implements, mostly stone celts, have been found within the area visited by the lecturer.

After the lecture a business meeting was held, at which Dr. B. V.

Cowdry announced his resignation as President of the Association. Dr. Cowdry, whose loss to the Association will be keenly felt, has returned to the United States, where he will in future be connected with the Rockefeller Institute in New York. Dr. Davidson Black was elected President of the Association.

Preservation of Antiquities in the State of Alabama

The following is from the General Laws of the State of Alabama (1915), pp. 729–730:

AN ACT

To provide for the preservation of the aboriginal and other antiquities, mounds, earthworks, ancient forts and graves in the State of Alabama.

Be it enacted by the Legislature of Alabama:

1. That the State of Alabama reserves to itself the exclusive right and privilege of exploring, excavating or surveying, through its authorized officers, agents or employees, all aboriginal and other antiquities, mounds, earthworks, ancient or historic forts, and burial sites within the State of Alabama, subject to the rights of the owner of the land upon which such antiquities are situated, for agricultural, domestic or industrial purposes; and that the ownership of the State is hereby expressly declared in any and all objects whatever which may be found or located therein.

2. That it is hereby made unlawful for any person not a resident of the State of Alabama, either by himself personally, or through any agent or employee, or for any one else acting for such person, to explore or excavate any of the remains described in section one hereof, or to carry or to send away from the State any objects which may be discovered therein, or which may be taken therefrom, or found in the vicinity thereof.

3. That no explorations or excavations shall be made in any of such remains without the consent of the owner of the land first had and obtained, and without such work is done in such way as not to injure any crops, houses or improvements on the land adjacent to or forming a part of such remains.

4. That no explorations or excavations shall be made, which will destroy, deface, or permanently injure such remains; and that after any such explorations or excavations, they shall be restored to the same like condition as before such explorations or excavations were made.

5. That no objects taken from such remains shall be sold or disposed of out of the State, but when removed therefrom, the objects so gathered shall be retained in State custody, and either placed in the collection of the depart-

ment of archives and history, or in the museums or in the libraries of the educational or other institutions of the State, or they may be exchanged for similar or other objects from other states, museums, libraries, or individuals.

6. That any person who shall violate any of the provisions of this act shall be guilty of a misdemeanor, and, on conviction, shall be fined not exceeding one hundred dollars for each offense.

APPROVED September 29, 1915.

THE TWENTIETH INTERNATIONAL CONGRESS OF AMERICANISTS

THE Twentieth International Congress of Americanists, which was to have convened at Rio Janeiro in 1921, will be held in that city August 20 to 30 in connection with the celebration by Brazil of its first centenary of independence. Official announcement to that effect has been made to the U. S. Secretary of State by the Brazilian Government.

It is hoped that a special effort will be made by Americanists in this country to attend the Congress, or at least to become members of it. Applications for membership together with dues ($5.00) may be sent directly to the Secretary of the coming Congress, Sr. Domingos de Carvalho, Praça 15 de Novembro N. 101, Rio de Janeiro, Brazil, or to Dr. Aleš Hrdlička, Secretary of the Congress preceding, U. S. National Museum, Washington, D. C.

ANNOUNCEMENT BY THE AMERICAN SCHOOL IN FRANCE OF PREHISTORIC STUDIES

THE American School in France of Prehistoric Studies announces that for the School year beginning July 1, 1922, two scholarships are available. Applicants should have some knowledge of prehistoric archaeology, not necessarily in the European field, and some acquaintance with French, but a long course of preparation is not absolutely necessary. The time is divided between excavations, excursions, and study in museums. This is supplemented by attendance at lectures given by French scholars and by the American Director.

Those who consider entering the School, whether or not applicants for scholarships, and whether or not intending to pass the entire year in the School, should, as soon as possible, address the Chairman, Dr. Charles Peabody, Peabody Museum, Cambridge, Mass.

MR. JAMES MOONEY, for thirty-six years a member of the scientific staff of the Bureau of American Ethnology and the leading authority on

the Cherokee and Kiowa Indians, died December 22, 1921, at his home in Washington, D. C. An extended notice of his life and work will appear in a later issue of this journal.

DR. VINCENZO GIUFFRIDA-RUGGERI, Professor of Anthropology in the University of Naples, the most prominent and the most productive of Italian students in his particular field, died December 21, 1921, after a brief illness.

DR. T. T. WATERMAN has received a temporary appointment in the Bureau of American Ethnology, Washington, D. C., and is now engaged in field work among the Indians in the neighborhood of the Kasaan National Monument, Alaska, and other parts of the North Pacific coast.

FATHER WILHELM KOPPERS, co-editor of *Anthropos*, and a specialist on the economic life of primitive peoples, is conducting ethnological investigations in the region of Tierra del Fuego. On his way thither he visited several anthropological centers in the United States, including New York, Washington, and Berkeley.

PROFESSOR ARNOLD VAN GENNEP, formerly of the University of Neufchatel and well-known for his works on religion, customs, and legends, as well as on totemism, primitive society, and folk-lore, visited the United States and Canada during the past winter and delivered popular lectures in both countries on the ethnography of northern Africa and the folk-lore of Savoy, under the auspices of the Alliance française. At the same time he was enabled to visit all of the principal centers of anthropological activity, meet many American investigators, and deliver lectures before some of the anthropological societies.

MR. JAMES R. MURIE, the well-known recorder of Pawnee ceremonies and the assistant of most of those ethnologists who have conducted investigations among the people of his tribe, died very suddenly at his home near Pawnee, Oklahoma, on November 18, 1921.

DR. H. J. SPINDEN, Curator of Archaeology of the Peabody Museum, Cambridge, Mass., has been appointed Instructor in Anthropology in Harvard University. He will give courses on the use of primitive design in modern industries.

NORTHWESTERN UNIVERSITY has established a lectureship in Anthropology, and Dr. Fay-Cooper Cole of the Field Museum of Natural History has been selected to fill the position.

DR. RUDOLF SCHULLER received a commission from the Mexican Government in December, 1921, to study the culture and the social structure of the Huastec Indians and expected to undertake field investigations among them covering two or three months.

OSCAR MONTELIUS, former Antiquary to the Realm of Sweden, died in Stockholm, November 4, 1921, at the age of seventy-eight. The outstanding accomplishment of his life was the establishment of an intelligible chronology for the Bronze Age in Europe and the region of the Mediterranean.

THE *Bulletin of the University of Denver* for November, 1921, contains an account of an archaeological expedition undertaken during the preceding summer to the ruins of the Cliff Dwellers and Pueblo Indians west of Pagosa Springs. The University was joined in this investigation by the Colorado State Museum and the expedition was under the joint direction of Mr. J. A. Jeancon, Curator of the Museum, and Dr. E. B. Renaud, Professor of Romance Languages. The latter "has been much interested in archaeology and ethnology for several years and has given these subjects careful and thorough study. During the past year he has taught courses in American Archaeology and in the Ethnology of the Indians of the American Plains." Considerable advance was made toward establishing a chronology for the various types of ruins found in the area and towards elucidating the evolution of the culture represented by them.

NATURE of December 22, 1921, p. 548, gives a report of the meeting of the British Association for the Advancement of Science on September 9th, where the origin of the Scotch people formed the main subject of anthropological discussion.

DR. C. G. SELIGMANN, well-known for his researches in Ceylon and New Guinea, has been sent on a third expedition to the Sudan, where he has already investigated the Shilluk and Dinka and will now study the Bari, Acholi, Madi, and Latuka.

ON December 29th, 1921, Dr. Georg Schweinfurth celebrated his eighty-fifth birthday. Hoffman and Campe announce a new book of his, entitled *Auf unbetretenen Wegen in Aegypten.*

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